ISCTE IUL
Instituto Universitário de Lisboa

Service Quality and Customer Satisfaction: A Case Study of Nursing Homes in Beijing

LI Chen

Thesis submitted as partial requirement for the conferral of the degree of

Doctor of Management

Supervisor:

Prof. José Manuel Gonçalves Dias, Associate Professor,

ISCTE University Institute of Lisbon

January, 2019

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Declaration

I declare that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university and that to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Date: 2019-1-31

Name: Li Chen

作者申明

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Abstract

With the rapid development of China's economy and ever-increasing life expectancy of the Chinese people, medium and high-end elderly care service is seeing a significant surge. Institutions providing such services, in their effort to obtain a competitive edge, have been eager to borrow a page from counterparts in western developed countries in terms of improving service management quality. However, given the differences in market attributes between China and foreign countries, management models in western countries cannot be entirely copied into China. In fact, despite the fast improvement in medical service and quality level in Chinese elderly care institutions, non-medical technology service quality management is not improving as fast and ideally. Relations between consumer groups of different segments and non-medical technology service quality management of the same nursery and consumer satisfaction have become a key issue attracting the attention of players in China medium and high-end elderly care service market.

With three K-brand Nursing Homes in Beijing as research objects, a questionnaire survey is conducted to explore the relationship between non-medical technical service quality, consumer satisfaction, and market segmentation. 355 valid questionnaires were retrieved. On the basis of literature review and field survey, this study adjusts the items of widely-used SERVQUAL and uses standardized presentation and interaction to describe consumer perceived service quality. Based on the research hypothesis and conceptual model to be tested, this study applies a structural equation model, uses model fitting index (CFI, TLI, RMSEA, and SRMR) to assess the fitting degree of actual data structure and theoretical structure, and estimates and tests the path coefficient in the model (hypotheses).

The research shows that standardized presentation and interaction are positively correlated with consumer satisfaction when dividing the market according to individual characteristics and nursing homes; all individual characteristics index have an impact on the perception of standardized presentation, some individual characteristics index have an impact on the perception of interaction, and some individual characteristics have an impact on

consumer satisfaction; and different nursing homes have an impact on consumer perceived service quality and consumer satisfaction; standardized presentation has a direct impact on consumer satisfaction, interaction has a direct impact on consumer satisfaction, standardized presentation has an indirect impact on consumer satisfaction through the direct impact of interaction on consumer satisfaction.

This study contributes to a better understanding of service quality management and provides a new theoretical basis and methods for improving consumer satisfaction of nursing homes in China.

Keywords: healthcare management; nursing home; service quality; consumer satisfaction; market segmentation

JEL: I11; M31

Resumo

Com o rápido desenvolvimento da economia Chinesa e o aumento constante da esperança de vida à nascença da população Chinesa, a procura de bens de cuidados para a terceira idade por parte da classe média e alta tem crescido de forma significativa. As instituições que prestam tais serviços, de modo a manterem-se competitivas, têm procurado melhorar as formas de gestão e prestação de serviços por adaptação de práticas ocidentais. Contudo, dadas as diferenças entre os dois mercados, os modelos de gestão ocidentais têm que ser adaptados ao mercado chinês. De facto, apesar do rápido crescimento dos serviços de saúde e qualidade do serviço prestado nas instituições Chinesas especializadas no segmento sénior, a melhoria da qualidade dos serviços de base não médica não tem acompanhado o mesmo ritmo. Em particular, a relação entre consumidores de diferentes segmentos, gestão da qualidade da componente não médica de prestação de serviço e a satisfação dos utilizadores têm atraído a atenção dos prestadores de serviços no mercado Chinês para o segmento médio e elevado.

Este estudo centra-se nos três lares da K-brand Nursing Homes em Pequim, sendo realizado um estudo por inquérito de modo a explorar a relação entre a qualidade do serviço prestado em termos de tecnologia não-médica, a satisfação dos utilizadores do serviço e a própria segmentação do mercado. O estudo empírico teve por base uma amostra de 355 observações após validação. Tendo por base a literatura e os dados, os itens da escala SERVQUAL foram ajustados e organizados em duas dimensões da qualidade do serviço percebida pelo utilizador: estandardização da apresentação e interação. Tendo por base as hipóteses de estudo e o modelo concetual, aplicou-se um modelo de equações estruturais, utilizando indicadores de ajustamento (CFI, TLI, RMSEA e SRMR) para medir a qualidade do ajustamento do modelo aos dados e estimar as relações estruturais no modelo (hipóteses).

Os resultados mostram que a estandardização da apresentação e a interação estão positivamente correlacionadas com a satisfação dos utilizadores quando as características dos utilizadores e dos lares são tidas em consideração; todas as características dos pacientes

consideradas neste estudo influenciam a perceção da estandardização da apresentação, algumas têm impacto na interação, e algumas influenciam a satisfação dos pacientes; a natureza do lar tem impacto na perceção do serviço prestado e na satisfação do paciente; a estandardização da apresentação tem um efeito direto na satisfação do paciente, interação tem um efeito direto na satisfação dos pacientes, e a estandardização da apresentação tem um efeito indireto na satisfação dos pacientes via a interação.

Este estudo contribui para uma melhor compreensão da gestão da qualidade do serviço prestado, bem como com novas bases teóricas e métodos para melhor compreender a satisfação dos utilizadores de lares de terceira idade na China.

Palavras-chave: gestão de serviços de saúde, lares de terceira idade; qualidade do serviço prestado; satisfação do consumidor; segmentação de mercado.

JEL: I11; M31

摘要

随着中国经济的迅猛发展和国民人均寿命的不断增长，中高端养老护理服务市场规模正在快速增长。中国中高端养老院为了获得竞争优势，纷纷借鉴欧美发达国家养老院的服务质量管理经验。但由于国内外在顾客细分市场的各项属性上存在差异，欧美国家养老院的服务管理模式并不能简单全部照搬。事实上，虽然中国中高端养老院的医疗技术服务质量提高很快，但非医疗技术服务质量的管理效果并不理想。不同细分市场的客群与同一养老院所提供的非医疗技术服务质量以及顾客满意度之间的关系，成为当前中国中高端养老院市场关注的发展问题。

本研究以北京 K 品牌旗下的 3 家养老院作为研究对象，通过问卷调查，获得有效数据 355 份，研究中国养老护理服务机构的非医疗技术服务质量、顾客满意度和市场细分之间的关系。在相关文献回顾和实地调研的基础上，本研究对传统的 SERVQUAL 进行了适用性调整，通过标准化说明与互动服务（standardized presentation and interaction）两个维度来刻画顾客感知的服务质量。基于有待检验的研究假设和概念模型，本研究建立结构方程模型，采用模型拟合指数（CFI、TLI、RMSEA 和 SRMR 等）判断实际数据结构与理论结构拟合程度，并对该结构进行路径系数估计与检验。

研究表明，在按个人特征差异和不同养老院进行市场细分时，标准化说明和互动服务都与顾客满意度正相关；所有个人特征指标都对标准化说明的感知有影响，部分个人特征指标对互动服务的感知有影响，部分个人特征指标对顾客满意度有影响；养老院的不同对顾客服务质量的感知有影响，养老院的不同对顾客满意度有影响；标准化说明对顾客满意度有直接影响和间接影响，互动服务对顾客满意度有直接影响，标准化的说明对顾客满意度的间接影响通过互动服务对顾客满意度的直接影响来实现。

本研究丰富了服务质量管理的相关文献，为改善中国养老院顾客满意度提出了新的方法和理论依据。

关键词：养老院；服务质量；顾客满意度；市场细分

JEL：I11; M31

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Acknowledgements

Doctoral study is coming to an end soon. Doctor thesis is a summary of academic achievements.

Now I'd like to extend my gratitude here to all friends. On the occasion when the thesis will be published, I look back to 6-year doctoral career and recall many people offer me help. I'm most grateful to my mentors, Prof. José Dias and Prof. Ping Sun, who give me continuous guidance and encouragement in my research. Your profound professional knowledge and work style of pursuing excellence inspire me to set up academic goals and master basic research methods.

Here, I'd like to express my highest respect and heartfelt gratitude to both of you. Especially Prof. José Dias. First, thank you for admitting me as your disciple. It is your acceptance that enables to succeed in evolving from a manager to a researcher. Second, I appreciate for your tireless instruction and strict check during topic selection, planning, execution and review, as well as key inspiration and assistance provided by you for construction of my theoretical framework and improvement of the thesis. Prof. José Dias and Prof. Ping Sun's profound academic attainments academic attainments scholastic style, serious scientific attitude, humorous while sagacious style of conversation deeply convinces me.

In the past several years, I have got much help from a lot of people. Here, I'd like to express my sincere gratitude to Prof. Virginia Trigo, who offers countless helpful guidance and assistance to my research. Meanwhile, I also owe a debt of gratitude to Eva Xu and Vian Ou, who always help me prepare curriculums and thesis materials. Your consideration greatly touches me. My thanks also go to research institutions and each interviewee, who provide me with rich and detailed data support and work with me in survey and data supply during empirical research.

Thank all Doctor of Business Administration classmates 2013, who accompany me through this unforgettable experience in my life, as well as my family members, who give me support in study and concern in life, and encourage me to persist in accomplishing academic career. Finally, I’d like to express my sincere gratitude to each expert for taking time out of your busy schedule to review, and carry out oral defense and guidance to my thesis.

致谢

博士学习生涯即将结束，博士学位论文是学习成果的一个总结，今将致谢其发于此，以飨众友。

在论文即将梓刻之际，回想六年博士生涯，给我提供帮助的人颇多。最应感谢我的导师 Prof. José Dias 和 Prof. Ping Sun 在我研究上持续的指导和鼓励，感谢两位导师，导师们渊博的专业知识、精益求精的工作作风使我树立了学术目标，掌握了基本的研究方法。在此，谨向两位导师表示崇高的敬意和衷心的感谢！

特别是 Prof. José Dias。首先，感谢他将我纳入门墙，正因于他的接纳，才使我完成了从一个管理者向研究者的蜕变。其次，感谢他在研究选题、规划、执行及评审阶段的孜孜教导和严格把关，在理论框架的搭建和论文的完善提供了关键启发和帮助。Prof. José Dias 与 Prof. Ping Sun 二位教授深厚的学术造诣、严谨的治学风格、严肃的科学态度、幽默而睿智谈吐深深地令我折服。

过去几年，我得到很多人给予的帮助。在此由衷的感谢 Prof. Virginia Trigo 给予我的研究许多非常有益的指导与帮助。同时感谢许睿敏（Eva Xu）和欧玮艳（Vian Ou）总是帮助我准备课程和论文资料，无微不至令人感动。

感谢参与研究的机构及每一位受访者，为我的研究提供了丰富而详实的数据支持并在实证研究期间配合进行调研与数据提供的工作。

感谢 2013 博士班全体同学陪我一起走过这段人生难忘的历程！感谢我的家人多年来对我学业的支持和生活上的关心，鼓励我持续完成学业。

最后，衷心感谢在百忙中对论文进行评审和答辩的各位专家对我的论文予以指导！

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Contents

List of Tables

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List of Figures

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Chapter 1: Introduction

1.1 Research background

Since the 1980s, the reform of the market economy has greatly promoted the development of China's economy, making China one of the world's fastest-growing countries. China's GDP increased by 10.3% between 1996 and 2000. Since 2000, China's GDP grew by an annual average of 13.3%, 16.8% and 12.3% in 2001-2005, 2006-2010, and 2011-2015, respectively (National Development and Reform Commission, 2016). What comes with the boost of China's economic level is the significant improvement of the people's living standard. According to the survey (Xun, 2013), between 2000 and 2010, the average life expectancy of Chinese people reached 72.1 years, a gain of 2.87 years. Specifically, the average life expectancy of the urban and rural people is 76 and 70 years, respectively (Zheng & Shi, 2016).

The growth of the economy and life expectancy has two main impacts on society. On the one hand, it has raised the demand for high-quality high-end service. On the other hand, it has brought pressure to the current service of nursing homes, especially the underserved middle and high-end aged-care service market (Xu, 2013). In 2000, the proportion of people over 65 years old accounted for 7% of the total population, an increase of 40% over 1982. In 2014, the proportion of people over 65 years old exceeded 10%, reaching a record high. The rate of people aged 65 to the population aged 16 to 64 (also known as the elderly support rate) will rise to 35% by 2050 from 11% in 1999. It becomes more difficult for children to take care of their old parents. Therefore, specialized nursing homes are needed to provide quality aged-care services (Ministry of Human Resources and Social Security of China, 2015). The surge in the number of elderly consumers has contributed to the emergence of a huge aged-care services market.

The huge middle and high-end old-age care service market is formed under the condition of incomplete coping mechanism, low awareness of service quality and delayed management

system construction, making it difficult to guarantee the service quality (Zheng, 2016). In response, the Chinese government introduced new policies for the development of nursing homes, encouraging and guiding social capital, including overseas capital to sponsor aged care undertaking in an effort to enhance competition among nursing homes, thus improving service quality (Peng, 2017). In the future, China's nursing homes will strive to present themselves as professional old-age care institutions featuring consumer-tailored service, high-end quality, localized brand, and professional image, four crucial factors that help nursing homes foster core competitiveness in the market (Shanxi Civil Affairs, 2011). Therefore, as old-age service providers, nursing homes should provide differentiated services according to the consumer type and different needs in order to gain market share and win the market competition (Shanxi Civil Affairs, 2011). Because of lack of unified middle and high-end service standards in the current aged care industry, it is now still difficult for a growing number of elderly people with middle and high income to enjoy excellent aged care services in high-end nursing homes.

The conditions of a country's economy also have an impact on the development of the aged-care industry. Australia, United States, and New Zealand are all countries with high welfare and high taxes. In 2004, the per capita GDP of Australia, United States, and New Zealand reported $43,000, $47,000, and $31,000, respectively (Shanxi Civil Affairs, 2011). Backed by strong economic strengths, the aged care industry in these countries provides old-age care with high welfare for elderly people. With the deepening of reform and opening up, China's aged care industry in some economically developed areas, such as Beijing, Shanghai, Guangzhou, and Shenzhen, also features high welfare, high demand, and high quality. With the increasing population of elderly people and per capita income, demands for high-quality old-age care is growing in China's aged care market. Meanwhile, the huge market value of middle and high end aged care industry has attracted a large number of investors including oversea capital into China's aged care market, greatly promoting the development of middle and high end aged care industry in China (Shanxi Civil Affairs, 2011). The foreign successful experience in old-age service can be widely learned by old-age service

industry in China, for example, the establishment of joint Chinese-foreign nursing home (Xun, 2013).

With the Chinese-foreign nursing homes booming in China, more and more high-end elderly consumers who are impressed by their professional image of service staff and VI brand design choose the elder care services provided by high-end Chinese-foreign nursing homes. However, their experience is not as good as expected. Mr. Wang, the president of Shanghai Happy 9 Elderly Paradise, thinks that China cannot simply copy the foreign elderly care service model without considering the cultural, social, living habits and other differences between China and foreign countries (Sina Finance, 2015). Some researchers argue that the middle and high-end elderly customers in China need to be treated differently according to their individual needs. The service management model mechanically copied by some middle and high-end nursing homes from foreign countries does not work in China. Especially it is difficult to meet different needs of elderly customers from different backgrounds using "One size fits all" approach. Any imitation of foreign aged care service models should take the cultural differences into account and, therefore, it is necessary to learn the strong points that suit China (Xiao, 2013).

1.2 Research problems

Currently, China's medium and high-end nursing homes are developing themselves in all respects by learning from foreign successful experience. However, due to the differences in the characteristics of consumer market segments at home and abroad, it is not suitable to directly copy the foreign management models, especially the service management approach that has a impact on consumers. The consumers in different market segments and the relationship between the service quality and satisfaction in the same medium and high-end nursing home has become the focus of the development problem attracting attention from China's medium and high-end nursing home market, which is also the research subject of this study.

1.3 Research purpose

The purpose of this study is to explore the relationships between heterogeneity of high-end consumers, perceived service quality and consumer satisfaction based on the unmet needs of heterogeneous consumers in nursing homes. By reviewing the existing literature on the background of aging society, old-age care service quality, consumer satisfaction, and consumer market segments in China, the study puts forward three hypotheses from the standpoint of service quality (SERVQUAL), collects and processes data using quantitative research methods, and reaches conclusions. Specifically, the purposes of this study are listed as follows:

First, the study aims to explore the impact of the relationship between consumer market segmentation and consumer satisfaction on high-end elderly consumers based on SERVQUAL scale. By widely reading relevant literature and carrying out field investigation of high-end nursing homes as a way to study two key problems regarding “What kind of aged care services should high-end nursing homes provide for elderly consumers?” and “The relationship between elder care services and satisfaction of high-end consumers”, the author summarizes and analyzes collected first-hand and second-hand materials and the previous research results.

Second, consumer satisfaction is described based on the consumer segmentation theory and the SERVQUAL scale. Based on the perceived satisfaction of the elderly clients with the service of high-end nursing homes, the service quality model is defined and the service quality is quantified. By widely reviewing the research literature on service quality, consumer satisfaction, consumer market segmentation, the study makes an in-depth study of high-end consumers of the nursing home to explore the relationships between high-end nursing home service quality, consumer satisfaction, and market segmentation and conduct quantitative analysis.

Third, this study verifies the three theoretical hypotheses concerning the relationship between service quality of high-end nursing homes, consumer satisfaction and market segmentation and sheds light on management. In order to directly reflect the relationship

between service quality of high-end nursing homes and consumer satisfaction, this study puts forward three hypotheses from the perspective of high-end nursing home consumers. In order to verify these three hypotheses, the relationship between structure and hypotheses is summarized using the MIMIC model based on multiple indicators and multiple causes. Through the empirical analysis of the model and the robustness of the regression results, the study provides a further understanding of the management context.

1.4 Research significance

1.4.1 Theoretical significance

In recent years, with the development of nursing homes, high-end elderly care services have been actively researched. The literature review found that most of the studies are focused on the definition of high-end service, operation models, consumer satisfaction measurement and personalized service design. However, the research on the quality of high-end old-age care services, especially the quantitative analysis of the quality of elder care services, is rarely found. Based on previous studies, the study explores the relationship between high-end old-age service quality, consumer satisfaction, and market segmentation from the perspective of elderly consumers.

According to the previous studies, the SERVQUAL scale is widely used for assessing the quality of banks and hotels but rarely used in China's high-end care institutions for the elderly. The structural equation model MIMIC is based on multiple indicators and multiple causes. This study summarizes the relationship between structure and hypothesis through the integration of improved SERVQUAL scale, consumer satisfaction, consumer market segmentation using an MIMIC model.

1.4.2 Practical significance

The high-end elderly care service is a fast-growing, diverse emerging nursing services industry lacking a unified quality standard in China. The study of the high-end old-age service quality focuses on consumer satisfaction measurement, the classification of consumer types

and the application of improved SERVQUAL scale. The results of this study can be used as a reference for personalized service design, service pricing, product strategy, product promotion and the valuation of the nursing care industry.

From the micro-level perspective, this study improves the applicability of the SERVQUAL scale, which can affect consumer satisfaction and conducts a quantitative analysis on consumer market segmentation. The results of the study provide theoretical guidance for high-end nursing homes in customizable services design, classification of consumer types and improvement of the existing service model.

From the macroscopic level, this study provides a basis for quality assessment of high-end elder care services. At present, there is still no unified and scientific industry standard in China's high-end nursing service industry. By studying the quality of high-end old-age care service, the study will help promote the establishment of quality standards in the high-end nursing service industry and give general guidance for nursing homes concerning how to improve the service quality management.

1.5 Research methods

Because the service quality and consumer satisfaction need to be analyzed using management methods and theories, the study is interdisciplinary research covering marketing and management science. The quantitative research method is mainly used in this study, including the Multiple Indicator and Multiple Causes (MIMIC), which is a form of structural equation model. The main steps in establishing the MIMIC model include model setting, model identification, and parameter estimation, model evaluation and correction (Wu, 2009). MIMIC model is usually composed of a structural equation and measurement equation based on multiple indicators and multiple causes.

In the quantitative study, the first hand and second-hand raw data collected from surveyed nursing homes are screened and processed first; then, research data is generated based on the MIMIC model to describe the research variables.

1.6 Thesis structure

Based on theoretical research and quantitative analysis method, the study studies the relationship between different market segments, perceived service quality and consumer satisfaction and sheds light on elder care service management. The thesis falls into six parts as follows:

Chapter One: Introduction. Presents research background, research problems and research purposes and describes research methods and research framework.

Chapter Two: Research background. Expound research background, current policies on Chinese nursing homes, existing problems and factors affecting the service quality of elder care services.

Chapter Three: Literature review. Reviews relevant research literature on service quality, consumer market segmentation, consumer satisfaction and service marketing, and based on which puts forward the hypotheses and conceptual model of this study, which provides a specific research direction for the quantitative research in the study.

Chapter Four: Research design and methods. Define research object, research variables and measurement, data collection methods and statistical analysis methods. With three branches of K nursing home in different regions as the research objects, the chapter details the research variables, data sources, and empirical analysis methods.

Chapter Five: Results. Empirical analysis of data is elaborated. Firstly, descriptive statistical analysis is carried out on the collected samples, and then the empirical analysis is conducted using the structural equation model. In the empirical analysis, the construction of the MIMIC model is based on multiple indicators and multiple causes, the process of data regression and the test of research hypotheses are described in detail; third, the results of effects of individual characteristics of elderly consumers in different nursing homes on standardized service, interaction and consumer satisfaction are obtained. Finally, the regression results are analyzed.

Chapter Six: Discussions. The research results are discussed. Based on the discussion of the research results, the practical significance of the study is further clarified.

Chapter Seven: Conclusions. Research conclusions are drawn and management enlightenment is given, which provides references for operation practice of high-end nursing homes in China. In addition, the contributions and limitations of this study are presented and suggestions for future research are put forward.

Chapter 2: Research background

In order to study the background of the quality of elderly care services, this chapter reviews the social background of old-age care, the current situation of nursing service for the aged, and the quality of high-end nursing service, which provides the context and research background for this research.

The important social background of this study is the aging of the population and the problem of providing service for the aged, which has become the normal condition in Chinese society (Liu, 2014). Population aging can be regarded as one of the important symbols of social modernization, as it is not only the natural process of modern social development but also the inevitable outcome for the transition of population reproduction from the "traditional" mode to the "modern" mode (Li, 2015). Aging itself has no advantages or disadvantages. The so-called "problems" or "challenges" are not entirely brought about by the elderly or the aging itself, but more due to the contradictions arising from the mismatch between the changed age structure of the population and the current socio-economic structure. Therefore, it is necessary to adjust and even restructure the governance model and public policies to adapt to it (Chen, 2016). It has been nearly 20 years since China entered the traditional aging society in 2000. As far as the aging problem is concerned, the government and the public have a direct understanding, and the revision research in academic circles is gradually deepening. However, the whole society still has a lot of cognitive errors in its response to aging and is used to regarding aging as an abnormal population and social situation. Quite a few researches are only trying to explore various ways to prevent or delay aging within the traditional logical framework. The governance space and policy effectiveness of this method have been stretched to the limit because it is to a large extent to use the thinking and methods of the 20th century's pension services to meet the challenges of the 21st century's pension services (Peng, 2017).

Aging, as an irreversible demographic trend, has a profound impact on all aspects of

Chinese society, and its development process is in step with that of the Chinese era. Under this background, the coping mode of China's aging population must be based on the integrity of China, and break out of the framework of traditional theories based on renewing concepts and innovating pension programs to form the current scheme (Li, 2015).

In 2015, the proportion of China's urban population was 56.1%, while that of the United States, Japan, and South Korea was 73.5%, 76.7%, and 81.5%, respectively; when the aging rate reached about 10.5%, which was 17.4%, 20.6%, and 25.4% higher than that of China, respectively. This means that China's urbanization is far less intense than that of the three countries under the same aging rate. However, compared with 2000, the difference in urbanization degree between China and the other three countries has been greatly reduced (Sun, 2017). When the aging rate of the four countries is 7%, South Korea with the highest urbanization degree is 44.28 percentage points higher than China. While this number is 10.5%, the highest level of urbanization in South Korea is 25.4 percentage points higher than that in China, reducing the gap by 18.88 percentage points. In addition to the level of urbanization, China's industrialization and modernization have also improved greatly in the past 15 years (Hong, 2012). The proportion of tertiary industry in Japan and South Korea is 2.2 and 9.8 percentage points higher than that in China when the aging rate of the four countries is 10.5%, while the proportion of tertiary industry in Japan is 10.4 percentage points higher than that in China and South Korea is 18.1 percentage points higher than that in China when the aging rate of the three countries is 7%, which shows that under the same aging rate, the gap between China and these countries in the proportion of tertiary industry is also narrowing.

Through the comparison of some major socio-economic indicators of the above four countries, we find that the gap between China and other countries in terms of "economic level" is indeed narrowing. However, under the same aging rate, China's socio-economic prosperity and development level are still far from those of the developed countries that have entered the aging society first, such as the United States, Japan, and South Korea (Wang, 2015). It can be said that the prominent feature of China's population aging at this stage is "getting rich while getting old". In recent years, the matching degree between "getting old" and "getting rich" is obviously improving, and population aging is an irreversible worldwide

trend. The government should not only ensure “a sense of security for the elderly”, but also try its best to delay and reduce the speed of aging and its economic and social impact (Lu, 2015). Human effort is the decisive factor. The process of population aging can be appropriately delayed, and the impact on social and economic development can be correspondingly reduced, provided that the response is timely, the measures are effective and forceful, and the relevant economic and social policies are well coordinated. Population life expectancy and fertility rate are the two main factors that play a decisive role in the process of population aging. As the extension of population life expectancy is an irreversible trend, only fertility rate is the active variable factor to delay the process of population aging (Yuan, 2014).

The sustainable development of population is an important prerequisite for the sustainable development of society. Under the condition that the life expectancy of the population is relatively stable, an average couple needs to have two children to ensure that the population will remain unchanged compared with the previous generation (Jiang, 2017). In real life, the normal generation turnover rate of the population is greater than 2 as some children cannot grow up for some comprehensive reasons. Internationally, 2.1 is generally considered as the normal generation replacement rate of the population, which means that each couple must bear 2.1 children on average to ensure the normal generation replacement of the population. If the fertility rate is higher than 2.1, the population will increase, otherwise, the population will decrease (Liang, 2007). Of course, the generation turnover rate is not a constant, but a variable, because of different infant mortality, maternal mortality, sex ratio, and the generation turnover rate of countries at different stages of development. However, the generation turnover rate must be greater than 2. From the point of view of the whole world, the declining birth rate in developed and developing countries is a common trend (Wang, 2007).

Developed countries in Europe and America have seen a sharp drop in fertility since the early 19th century. Data from the World Bank show that although the fertility rate in high-income countries has risen slightly in the past 20 years, it has remained at the level of 1.62. The birth rate in middle-income countries has been declining steadily since the 1960s. At present, although the birth rate in low-and-middle-income countries is still relatively high,

it is also steadily declining compared with previous years (Peng, 2017).

Based on experience, most regions and populations in China have entered the marriage and childbearing modes of "extremely late marriage-extremely late childbearing" and "low fertility desire-high fertility cost" (Lu, 2016). Although China has implemented a universal two-child policy since January 1, 2016, in fact the majority of the post-60s and post-70s have missed the opportunity to have children of the right age, and are in a dilemma of willing to have a another child but not being allowed to have two physically, while the post-80s and post-90s are in a tangle of being allowed to have another child physically but not willing to have two themselves (Lv, 2014).

Data released by the National Bureau of Statistics show that from 2010 to 2014, China's fertility rate was only 1.18, 1.04, 1.26, 1.24, and 1.28 with an average of 1.20. Considering the omission, even if the fertility rate in these five years is increased by 10 %, the average fertility rate is only 1.32, which is far lower than the normal generation replacement rate of the population. Even if this figure is increased by 15 %, the average fertility rate is less than 1.4 and still much lower than the normal generation replacement rate of the population (Chen, 2016). "It is an indisputable fact and the consensus of all circles that China has entered the era of low fertility" (Zhao, 2015). Therefore, fertility must be recognized at the height of the national fundamental strategy as it is related to delaying the process of population aging, is an important aspect of the top-level system design to effectively deal with population aging, and is more related to China's sustainable development strategy (Lin, 2012).

China's population growth rate has been far lower than the world average since modern times (Lu, 2016). The Beijing Municipal Civil Affairs Bureau pointed out that China's population accounted for a large proportion of the world's population, falling from 36.6% in 1820 to 25.6% in 1900, then to 21.8% in 1950, rising to 22.1% in 1980, and falling to about 18.7% in 2015. From the perspective of historical time, the proportion of China's population in the world's total population is declining. The proportion of China's population in the world's total population rose from 1950 to 1980 by only 0.3 percentage points, but fell by 3.4 percentage points from 1980 to 2015, with the annual decline nearly 0.1 percentage point on average. This rate of decline is equivalent to 10 times the increase in the proportion of China's

population in the world population in the previous 30 years. Although China's population reached 1.375 billion in 2015, 2.49 times 552 million in 1950. However, only 16.55 million people were born in 2015, far lower than the average of 21 million people born every year from 1950 to 1954 (Beijing Municipal Civil Affairs Bureau, 2016).

The 2010 census data show that the population of the "post-80s", "post-90s", and "post-00s" are 219 million, 188 million, and 147 million, respectively. During the period from "post-80s" to "post-00s", the number of births dropped by 32%. Some scholars have calculated that the total population will decrease by half every 50 years if the fertility rate remains at about 1.4 (Zhang, 2017). Xinhua News Agency conducted a study on the current situation and policies of China's social security, which also pointed out that the reason why China's current population has not declined is that the past fertility rate is higher than the replacement rate of generations and the life expectancy of the population is continuously prolonged. However, the long-term low fertility rate has determined the sharp decline of China's total population in the next few decades or even in the last hundred years (Xinhua News Agency, 2016).

China's aging population will become more serious for the moment. Only by making efforts to return the fertility rate to the normal generation replacement rate of the population can the process of population aging be effectively delayed and the impact of population aging on economic and social development be reduced. From another perspective, the population is always the most important resource for economic and social development and national rejuvenation (Qi, 2015). Some studies have shown that the important factor to promote industrial upgrading and economic development is the increase in the quantity and quality of the new generation of labor supply, so appropriate relaxation of the birth policy can promote economic development and narrow the regional gap. The low fertility rate will gradually make China lose its demographic advantage, thus the population conditions necessary for China's national economic and social development will no longer exist, because it will not only make China's overall population decline continuously but also makes the proportion of China's population in the world population decline rapidly (Zhang, 2014).

2.1 China's aging population and elderly care

2.1.1 Aging problem in China

Since the 1980s, China's population of working age has been increasing. From 1982 to 2012, the proportion of the working-age population in China rose from 61.5% to 74.1%, with an average annual increase of 0.42 percentage points. Meanwhile, China's aging population is also increasing. The population aged over 64 increased from 49.91 million in 1982 to 127 million in 2012, an average annual growth of 2.574 million (International Labor Organization, 2011). In 2012, China's total population, excluding Hong Kong, Macao and Taiwan, reached 1.354 billion, of which 1.04 billion were working people aged 15 to 64, down 0.3 percentage points from 2011; 127.14 million were non-working people aged 65 and over, accounting for 9.4 percent of the total population, up 0.3 percentage points from 2011 (Information Office of the State Council, 2013).

By the end of 2017, the total population of mainland China (composed of 31 provinces, autonomous regions, municipalities directly under the central government and active servicemen of the Chinese people's liberation army, excluding Hong Kong, Macao special administrative region, Taiwan province and overseas) was 139.008 million, an increase of 7.37 million over the end of the previous year. From the age structure, the working-age population aged from 16 to 59 is 901.99 million, accounting for 64.9% of the total population. The population aged 60 and above is 240.9 million, accounting for 17.3% of the total population, of which 158.31 million are aged 65 and above, accounting for 11.4% of the total population (Zhang, 2017).

As shown in Figure 2-1, the total number of births in 2017 is 17.23 million, which is 630 thousand less than that in 2016. Meanwhile, the degree of aging continues to grow, and the proportion of the elderly over 60 years old and of that over 65 years old in the total population has increased significantly.

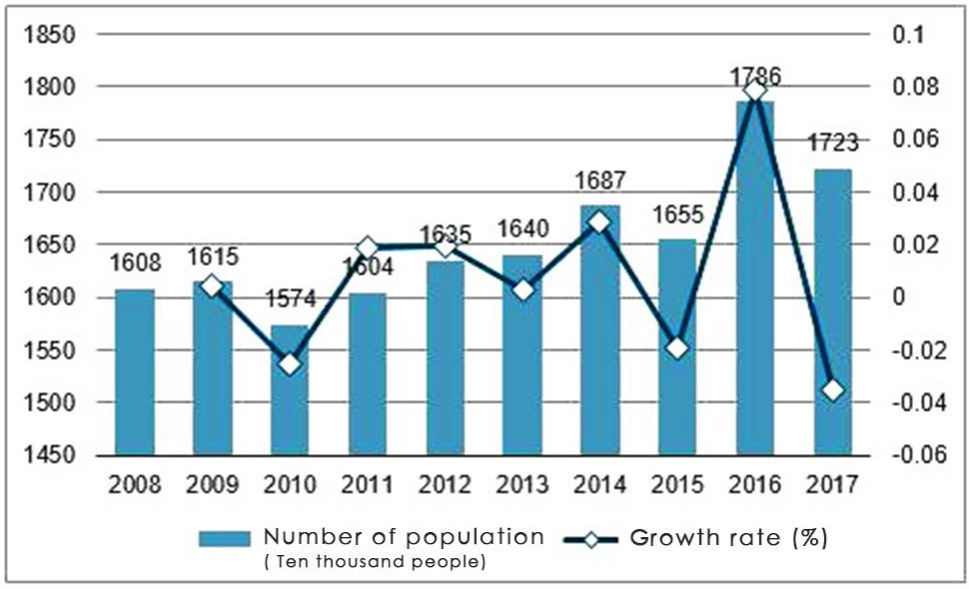

Figure 2-1 2008-2017 China's newborn population number and growth rate

Source: Zhang (2017)

The aging degree of China's population is accelerating. In 2017, the population aged 60 and above is 240.9 million, accounting for 17.3% of the total population, of which 158.31 million are aged 65 and above, accounting for 11.4% of the total population. The population over 60 years old and that over 65 years old has increased by 0.6 percentage points over the previous year. It is estimated that by 2020, the elderly population will reach 248 million and the aging level will reach 17.17 %, of which the elderly population over 80 years old will reach 30.67 million. In 2025, the population over the age of 60 will reach 300 million, making it a super-elderly country. Considering the increase in family planning work in the late 1970s, it is estimated that the aging process in China will reach its peak by 2040, and then the aging process will enter a period of deceleration (Zhang, 2017).

As shown in Figure 2-2, the total population of mainland China (composed of 31 provinces, autonomous regions, municipalities directly under the central government and active servicemen of the Chinese people's liberation army, excluding Hong Kong, Macao special administrative region, Taiwan province and overseas) was 139.008 million, an increase of 7.37 million over the end of the previous year.

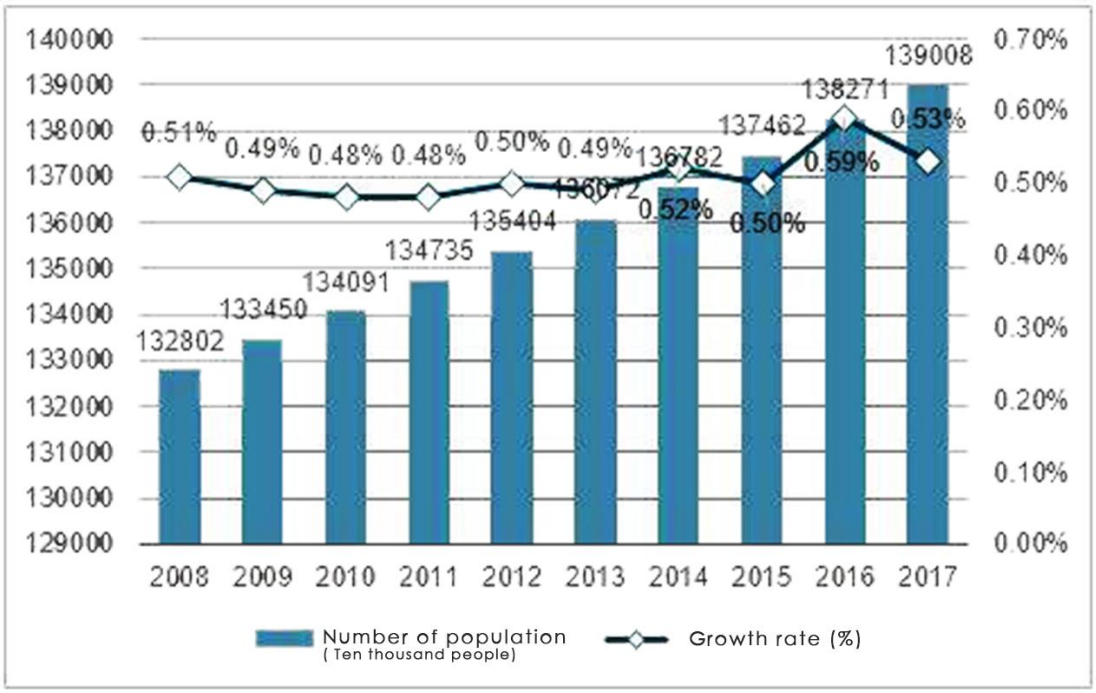

Figure 2-2 2008-2017 China's total population and growth rate

Source: Zhang (2017)

The characteristics of China's aging population:

① *the absolute number of the elderly in China is large and its development trend is rapid.* According to the survey, China's elderly population accounts for 20% of the total number of elderly people in the world. The average annual growth rate of aging population is about five times the total population growth rate. From 2011 to 2015, the proportion of the elderly over 60 years old in China had increased from 178 million to 221 million, and of which the proportion had increased from 13.3% to 16% (Pan, 2016). Such a huge growth rate and quality of the elderly population has made China enter an aging society ahead of other countries;

② *the unbalance development between regions and inversion of urban and rural areas.* On the one hand, in the 1970s, due to the birth control policy of "fewer and better births, late marriage and late childbearing", the fertility rate in urban areas was lower than that in rural areas; on the other hand, as a large number of young laborers in rural areas went to first-tier and second-tier cities for living, and the number of the elderly in rural areas increased. In particular, the empty-nest elderly and the elderly living alone accounts for a high proportion, leading to more and more serious population aging in rural areas, which

furthers leads to uneven development among population aging areas and inversion of urban and rural areas (Hao et al., 2012);

③ *the aging trend of the elderly is increasing sharply*. The disability rate of the oldest old is higher than that of other elderly people. And the oldest old needs more care than other elderly people. The oldest old is the most vulnerable group among the elderly and are the key and difficult point to solve the aged problems (Ding & Xu, 2007). According to a survey, China has a new annual growth of 1 million oldest old, and such large-scale growth will continue until 2025 (Zhang, 2014);

④ *the growth rate of the elderly living alone and the empty nest elderly is accelerating and its proportion is increasing*. With the constant quickening of China's urbanization process, the three generations living together is getting fewer and fewer in the family model, more and more families are becoming smaller. Besides, with the accelerated pace of urban life, young children have less time with their parents, making the pension function of the traditional family in China gradually weakened (Zhou, 2016). According to the latest survey, by 2020, it is estimated that the number of the elderly living alone and the empty nest elderly will increase to about 118 million, and the elderly living alone and the empty nest elderly will become the "main force" among the elderly (Lyu & Ni, 2014).

In addition, in terms of the aging trend in some parts of China, the trend of population aging is imbalanced between regions. From the perspective of regional distribution, the aging problem in Eastern and Central China is more serious than that in Western China. In terms of time, the problem of aging has shifted from the East to the Central and Western regions. In 2002, of the 31 provinces, regions and municipalities directly under the Central Government, people aged over 65 in Beijing, Tianjin, Shanghai, and Zhejiang accounted for more than 10% of the total population. These provinces and cities are located in Eastern China. By 2012, Tianjin, Jiangsu, Anhui, Shandong, Hubei, Chongqing, and Sichuan had over 10% of the total population aged 65 and over. Of the eight provinces and cities mentioned above, there are three in the Eastern regions, three in the Central regions and two in the Western regions (Information Office of the State Council, 2013). According to the aging data reported above, the increasing size of the aging population indicates that the aging phenomenon in China is

becoming increasingly serious, and its distribution is also changing. Whether it is observed from the macro or micro perspective, the development of China's aging population in various regions is uneven, but on the whole, it shows an upward trend.

A review of the economic development and demographic structure of developed countries shows that most of these countries have entered the stage of population aging after sufficient capital accumulation. Therefore, these developed countries have the strong financial strength to solve the problem of the aging population (Peng, 2017). According to the United Nations, an aging society refers to one where 10 percent or more of the population is over 60, or 7 percent or more is over 65. China has entered the stage of population aging at the beginning of this century, but unlike the developed countries, China's financial capacity is not enough to solve this problem. In China in 2001, the population aged 65 or above accounted for 7.1% of the total population. But China's GDP per capita is $1,041.6, only equivalent to 5% of Germany, Britain, and Canada, and 3% of the United States and Japan. By 2012, China's GDP per capita had risen to $6,188.2, but still lagged behind the United States, Japan, Germany, and the United Kingdom. China's economic growth is still struggling (Information Office of the State Council, 2013). In order to solve the problem of aging, the Chinese government lowers the entry threshold by simplifying registration procedures for elderly care institutions and encourages private capital and oversea capital to sponsor China's old-age industry, for example, through the establishment of professional old-age care institutions, old-age insurance, old-age health industrial park, and other projects.

2.1.2 Reasons for China's aging problem and underserved elderly care services industry

Over the past 50 years since the founding of the People's Republic of China, the health of the Chinese people and the health comprehensive indicators have been significantly improved. The mortality rate of the Chinese population has dropped from 2% in 1949 to 0.7% in 2000. With the control of fertility level and the decline of population mortality, the problem of population aging is becoming increasingly prominent (Beijing Aging Population Commission, 2011). Based on the following data, the study indirectly shows that the level of health services in China is gradually increasing and the mortality rate is steadily decreasing.

Life expectancy in China rose from 40.8 years old to 70.8 years old from 1949 to 1990. Meanwhile, the incidence and mortality of infectious diseases also dropped dramatically (Wang, 2018). Infant mortality, maternal mortality, and mortality rates of children under five years old have all declined significantly, of which Infant mortality decreased from 20.0% in 1949 to 3.31% in 2001, mortality rates of children under five years old dropped from 5.52% in 1993 to 4.70% in 1998, and maternal mortality fell from 1.5% in 1950 to 0.06% in 1998 (Zhou, 2016). The changes in these indicators reflect that diseases that have posed a serious threat to people's health in the past have been effectively prevented and controlled, life expectancy has been prolonged, and health levels have been significantly improved.

According to the data change, the decline of mortality rate and the increased life expectancy have contributed to the aging problem. Influenced by the factors of social development, the problem of aging varies greatly from country to country. China's aging problem is mainly affected by the demographic transition and the "one-child policy".

First of all, China's demographic transition is one of the factors affecting population aging. Theoretically, demographic transition (DT) refers to a country's transition from high birth rate and high death rate to low birth rate and low death rate during the development from pre-industrialization to industrialized economy (Zuo et al., 2011). Generally speaking, population transition can be divided into three different stages according to the birth and mortality rates. The first stage is characterized by a high birth rate, high mortality rate, and low population growth rate. The second stage is characterized by a high birth rate, low mortality rate, and high population growth rate. The third stage features a low birth rate, low mortality rate, and low population growth rate. Demographic transition starts with a highly balanced stage and ends with a low balanced stage. Therefore, when the demographic transition enters the low balanced stage, this indicates that the demographic transition has basically completed, and has entered the population aging stage (Liu, 2014). Since the founding of the People's Republic of China, the mortality rate in China has been declining. The mortality rate in China was about 20% in 1949, dropped to 6.4% in 2003, and slightly increased to 7.15% in 2012. Moreover, the birth rate experiences a similar change. China's birth rate dropped from 36% in 1949 to 11.9% in 2010 and rose slightly to 12.1% in 2012

(Zhou, 2016). According to the international convention, 2003 marked the turning point of China's mortality rate. Considering the natural population growth standard and the turning point of mortality, China completed its population transition in 2006 (Information Office of the State Council, 2013).

Second, China's population aging is affected by government policies. With the economic and social development, the population transition is a spontaneous process that will inevitably take place in all countries (Wu, 2014). However, China's policy intervention has greatly affected and accelerated the process of population transition in China. Compared with other countries, China's population transition period is relatively short and the population growth rate changes quickly, which is an unnatural change. With the improvement of medical conditions and living standards, China's population was characterized by a high birth rate, low mortality rate, and high growth rate after 1949. Since the 1970s, China has enforced one-child policy, resulting in low birth rate, low mortality rate, and low growth rate. In 2015, having fully realized the negative impact of the one-child policy on social development, the Chinese government abolished the family planning department and introduced the second-child policy. Thus, it can be seen that China's policy intervention has a great impact on the population transition and aging in China.

The reasons are quite simple by observing from the population data, and there are two reasons: the first reason is that fewer people were born; The second reason is that people's life expectancy increases, while the mortality decreases (Pu et al., 2017). One is a low birth rate and the other is a low mortality rate. In a society with a high birth rate and high mortality rate, the age structure of the whole population should be in the shape of a positive pyramid. The top of the pyramid is the proportion of older people, and the bottom is the proportion of young people. The people at the top of the high mortality rate die very quickly, they are not in a very large proportion, but in a very small and sharp proportion; And the birth rate is very high. The teenagers at the lowest part will continue to join the total population, so the bottom is big. This is the case of the positive pyramid. If the birth rate and the mortality rate are both low, the top spire will disappear more and more slowly, so the spire will get fatter and fatter. The number of people born at the bottom is less, the number of people filling is slower. Therefore,

the base will become narrower, and the pyramid will change (Wang, 2013). The proportion of the elderly is larger.

2.1.2.1 Confronting problems by China's population aging

① *The aging of the population problem is relatively simple in terms of the causes, but the impact of the problem is greater*. The problem means that the elderly account for a growing proportion of the total population, and has reached a certain size and degree. The increased elderly population, due to weakened body resistance and increased urban pollution, will breed diseases and increase urban medical consumption (Chen, 2010). The elderly are generally afraid to buy medicines to treat their illness but seek medical treatment actively. Under the current medical care service system, the transfer payment mechanism of hospitals is not perfect, and there is a serious information asymmetry between doctors and patients. Medical and nursing staff often use their own information advantages to prescribe medium and high-end drugs or nursing services to patients, but the actual needs of the elderly are not met. As a result, medical consumption in cities tends to be at a medium-high level (Liu & Xiao, 2009). The diseases of the elderly are largely chronic diseases. The nature of chronic diseases determines the long-term nature of treatment. The treatment of some chronic diseases requires the purchase of expensive drugs or medical equipment. As a result, the medical and nursing service market for the elderly in China with low service quality but high-end consumption is gradually formed, which also stimulates the preventive savings of medical care, thus inducing the current elderly population to consume high-end medical care (Du, 2006).

② *It will reduce labor supply and labor productivity*. Effective labor supply is the basic guarantee to ensure economic development, and the demographic dividend is an important factor for China to maintain long-term and rapid development (Wei, 2005). However, the aging of the population, especially the aging of the labor force, will lead to a decline in the proportion of working-age labor force, which will deprive China of the advantages of labor resources. It will restrict the adjustment of economic and industrial structure (Li, 2016). At present, China is in a critical period of transforming from labor-intensive industry to capital-intensive and technology-intensive industry, in need of a large number of

compound innovative talents who are knowledgeable in technology, educated, and have multiple skills. However, the aging society of the population will inevitably accompany a large labor force with the growth of age and the weakening of innovation ability, adaptability, knowledge update ability, which restricts the development of emerging industries and the adjustment of industrial structure, resulting in the increase of the burden of the working-age population. With the gradual deepening of the aging of the population, the dependency ratio of the social working-age population to the elderly will become larger and larger. In addition, the dependency on young children will increase the economic burden of the working-age population (Hu, 2013). According to the data of the National Bureau of Statistics in 2015, the total dependency ratio of the working-age population in China mainland was 34.2% in 2010 and 38.1% in 2014.

③ *Influence on the development of modern agriculture*. At present, the aging process of the rural population in China is faster than that of the urban population, and a large number of rural young and middle-aged labor force is flowing out, which makes the overall decline of the quality of labor force in rural agricultural production. It is not conducive to the promotion and application of modern advanced agricultural machinery and technology and hinders the development of modern agriculture. Meanwhile, agriculture is the basic industry of China's social development and the slow development of agriculture will definitely affect the development process of China's economy comprehensively (Zhang, 2010).

④ *It will reduce social savings.* Social savings are the basic guarantee for investment in economic construction. With the increase of the elderly population and the decrease of their income, the elderly are more inclined to consume medical care, which leads to the decrease of social savings and social investment, thus affecting economic development (Qing, 2017). At the same time, it will affect tax policy and government financial expenditure. The aging population will inevitably lead to the reduction of the labor force, which will correspondingly reduce the proportion of taxpayers. In order to increase tax revenue, the government only has to raise taxes, thus increasing the burden of enterprises. Moreover, in order to ensure the life quality of the elderly, the government will also

substantially increase the financial expenditure on medical, health, pension, and other social services; thus, reducing investment in economic construction (Wang, 2012b).

2.1.2.2 Current countermeasures to the aging problem in China

The aging of the population is a result of the development of the economy, society, science, and technology. Most developed countries in Europe and the United States have been included in the ranks of aging countries as early as five years ago, so there is no need to become jittery at the mention of aging. Because the aging of the population is an important trend affecting many fields, it is necessary to consider comprehensively and coordinate operations in a broader field to meet the challenge of population aging, and to plan and deploy it as a strategic issue as soon as possible (Luo, 2017). In particular:

① *To implement "individual account" and gradually enhance the ability of pension funds to pay*. The old-age insurance system for urban employees is changed from pay-as-you-go system to partial accumulation system of "combination of social collection and individual account", which aims to meet the pension payment crisis at the peak of population aging in the next century (Chai, 2018). The cumulative pension system has many advantages, such as helping aging China to maintain adequate deposit rate, good investment and continuous improvement of living standard, also allowing workers to share the fruits of successful economic reform, broadening and deepening China's capital market (Sun, 2017). However, as state-owned enterprises are in the stage of strategic restructuring, with poor economic returns and constantly increasing pension replacement rate, individual accounts cannot actually play the role of accumulation at present. The funds deposited in them cannot even meet the current payment. Individual accounts only play the role of pension payment, which is basically an empty account (Shao, 2001). In order to realize the smooth transition of the old-age insurance system from pay-as-you-go mode to partial accumulation mode, it has been extremely urgent to find active and effective means of payment for the system conversion cost (Wu, 2014). According to statistics, from 1952 to 1978, the real wages of employees increased by only 38% annually. In 1978, the average money wages of employees was only RMB 615, at the same time the per capita savings of residents was only RMB 21.88. But the accumulation rate of national income increased from 21.4% in

1952 to 36.5% in 1978. In some years, it was as high as 43.8%, and the proportion of total wages was only 18.9% in national income. Therefore, the stock of state-owned assets was realized under the government's long-term policy of low wages, low consumption, and high accumulation. Theoretically, it is feasible to pay the transformation cost of social security through the stock and increment of state-owned assets (Peng, 2017).

② To establish the medical and health insurance system for the elderly, and gradually realize the healthy aging. According to the physiological evolution of people, 92% of medical expenses are spent after the age of 6 in the whole life. But at present, most elderly people have difficulty in getting medical treatment. In Hanyang District of Wuhan as an example, only 38% of the elderly in the whole district enjoy public medical treatment, and 10% of the elderly in the whole district has high-end pension consumption. While 52% of the elderly suffer from illness, they have to pay their own medical expenses. It is obviously difficult for those who have little retirement pension and cannot get it on time and in full to see a doctor (Yuan, 2014). As for the countryside, cooperative medical care has not been popularized, and many places are short of medical treatment and medicines, making it more difficult for the elderly to see a doctor in the countryside. First, we should establish and improve the old-age medical insurance system. Compared with the total population, the elderly population has the characteristics of high morbidity rate, high disability rate, and high medical utilization rate. The elderly needs basic medical insurance provided to meet their basic medical needs so that the elderly themselves and their families will not suffer from personal and family economic crisis due to disease (Liang, 2007). While a health insurance system is under construction for the whole population, it is necessary to formulate relevant policies for the elderly to ensure their basic medical needs. We should carry out education oriented to the aging society. The medical education should consider the aging of the population, particularity the demand for medical care. Relevant contents should be added to the curriculum of medical colleges and nursing schools so that medical workers can systematically grasp the physical and mental health, disease characteristics of the elderly. Also, a group of general health practitioners should get training suitable for primary health care in the community to provide primary health care services for community members, including the elderly (Wang, 2012a). On the other hand, health

education for the society, families and the elderly, including healthcare knowledge, nursing knowledge, emergency measures in emergency situations need to improve people's understanding of the physical and mental characteristics of the elderly and general health care knowledge, and strive to meet the basic medical needs of the elderly (Li, 2016). The basic medical insurance system for workers and staff in cities and towns needs improvement and establish a multi-level medical insurance system. Overall, various forms of health insurance in rural areas need improvement. The urban and rural medical assistance system should gradually be established to improve the medical conditions of the extremely poor elderly (Hu, 2013). Second, the public should gradually achieve healthy aging. Relevant international studies and experience show that diseases and disabilities are not inevitable products of old age, and can be completely and possibly compressed into a shorter period of life through efforts, that is, to achieve a healthy aging, which is the expectation of the elderly and their families and even the aging society (Liu, 2014). In countermeasures to promote overall health for the elderly, a health promotion system consisting of hospitals, families, society (communities) and individuals of the elderly should be established (Zhang, 2000). In particular, the supply and demand of elderly family care under the trend of family miniaturization should be paid attention to and corresponding assistance measures should be provided in time. While gradually and properly solving the material life of the elderly, we should emphasize and attach importance to their cultural endowment, improve their quality of life, promote the development of elderly welfare, elderly education, elderly culture, elderly health, elderly sports, etc., and create conditions for the elderly to spend their later years in peace (Ma, 2007).

③ *To implement a flexible retirement age system to give full play to the advantages of human resources of the elderly*. The average life expectancy in China has risen to 68.9 years, which is higher than the world average of 63.2 years old. The longer healthy life expectancy means that the longer working life will be possible and the total cost of labor production will decrease (Zhang, 2010). In Germany, a flexible retirement age system had been implemented since 1972. Men over 63 years old can decide whether to continue working or retire and raise the retirement age from 63 to 65 years old; In Italy, the

retirement age for both men and women has risen to 66 years. In Sweden, the retirement age is 65 for both men and women. China has a retirement age system with gender and occupational differences. Compared with other countries with the same life expectancy level, China's retirement age is generally younger (Chai, 2018). Thus, two phenomena are unavoidable: first, the retired population is a large number of implicit employments; second, the older the retirement age, the better your pension benefits tend to be. The former phenomenon makes it impossible for us to truly understand, reflect and master the current employment situation. The latter phenomenon means that the longer you study, the lower your pension will be when you retire compared with your peers, which is neither fair nor reasonable (Si, 2013). Therefore, there are at least four benefits regarding a flexible retirement age system: first, the elderly have something to do, good for health. And longevity is an important symbol of social progress and development; second, the effective and rational use of human resources. According to the principle of social needs, free will and capacity, the elderly are encouraged and guided to engage in education impartment, public welfare, community service and self-service and other activities (Liu, 2006). For aged senior professional and technical personnel engaged in education, scientific research, medical work, and other special expertise, the retirement age should be appropriately extended according to regulations and needs to create conditions for them to continue to play their roles (Ma, 2007). The aging work institutions with conditions can help organize retired experts, scholars, and entrepreneurs to act as consultants and provide consulting services for the business community (Xie, 2010). Third, turning implicit employment into explicit employment will not only does not increase employment pressure, but also objectively reflect the structure and employment situation of employees in China, to realize the transition from the goal of increasing employment rate of working-age population to the goal of increasing employment rate of total population, thus as to promote the improvement of overall national strength and social welfare (Xia, 2006). Fourth, it is conducive to improving the labor market, expanding new employment channels according to the principles of rational allocation and effective use of human resources, exploring new sources of fees, and realize the potential income level of premiums (Wan, 2007).

④ *To actively promote the construction of community pension and give full play to the function of community pension*. In the planned economy system, the pension function of retirees is basically undertaken by units and families (Qi, 2007). With China's accession to the WTO, enterprises are faced with not only domestic competition, but also international competition, and then the "small social functions" in enterprises must be transferred to communities (Wu et al., 2013). Most of the elderly population have retired from the past labor positions, and the circle of activities is narrowing. Therefore, the community has become the basic field of social activities for the elderly (Yi, 2002). Community pension services include the provision of housework, family health care, elderly care, nursing, etc., as well as the establishment of elderly canteens, teahouses, nursing homes, geriatric disease prevention and control stations, legal counseling service stations, and a variety of recreational and sports facilities for the elderly in the community. We should provide a full range of multi-functional and multi-form services for the elderly, and strive to ensure that the elderly do not leave home for trivial matters, do not go out of the neighborhood committee for difficult things, and do not go out of the street for some major events (Chen, 2010). Community pension service is a public welfare undertaking, which should give full play to the community's function of helping the elderly, but at the same time follow the principle of market economy, implement reasonable charges and maintain a virtuous circle. On the one hand, we should carry out mutual help among neighbors, organize young and healthy elderly to participate in the community service work within their ability, mobilize all parties in society to serve the elderly and so on. On the other hand, there are many projects that can provide paid services according to the principle of capital preservation and meager profit. This cannot only supplement the funds of the sub-district and residents' committee but also set up a number of laid-off workers for employment (Huang, 2013). In the countries with a developed market economy, community pension function is paid more attention to, which is implemented by community organizations (Han & Sun, 2014). In community housing design, they have long proposed the so-called "solar system" architecture. Taking the elderly residence as the center, and building medical, entertainment, learning and fitness facilities to serve the elderly in the surrounding area. Some countries have also established "daycare centers" to send the elderly to the centers

during the day and to take them home at night to be reunited with their children. It not only solves the problem that children have no time to take care of the elderly during the day but also meets the mental needs of the elderly and their children (Wang, 2013). The unique advantages of community pension not only meet the requirements of the market economy but also supplement the shortage of family pension after family structure changes.

⑤ In rural areas, the family pension system should be combined with social support. According to the investigation conducted by experts and scholars organized by the Ministry of Civil Affairs on the peasant households in some provinces, 8.52% of the rural farmers have chosen the "pension" as the most urgent problem to be solved in the current rural areas. Therefore, it is important and urgent to popularize and implement social basic pension not only in cities but also in rural areas (Pu, 2017). The future Chinese endowment problem, the difficulty lies in the countryside, the key also lies in the countryside. In the vast rural areas, due to the gradual shrinking of the family size, the number of children continuing to decline, the number of young and middle-aged labor force flowing into the cities, the dynamic speed of the aging of the rural population is also accelerating. Because the number of the rural elderly is very large and the peasants themselves have the right to use the land, from the main body, the rural endowment should be based on the family, supplemented by the society, and the elderly should be encouraged to take care of themselves and the self-supporting consciousness should be established (Mao, 2014). For the rural "three-no-old people" (no source of life, no ability to work, no children to rely on), the "five guarantees" system should continue to be implemented. For the only-child families and double-female households following the national fertility policy, endowment insurance for a family plan will continue to be implemented. According to incomplete statistics, since this insurance has been piloted in Liaoning and Fujian provinces and other places, more than 450000 commercial insurance companies have been insured nationwide, with an insured amount of more than 400 million yuan, which has been welcomed by these families. Their idea is changed greatly from raising children for old age to insuring for old age. In the future, we should continue to strengthen the promotion of commercial endowment insurance (Xu, 2015). Rural social endowment insurance, established in the 1980s, has been suspended for 2 years in the process of rectifying financial institutions,

and now accumulates 18.4 billion yuan of funds (Dai, 2008). The next transfer of the system requires in-depth research and implementation by the government administration. The existing commercial insurance companies are unwilling to accept the business. If the status quo is maintained, existing managers will continue to consume management costs, and the security of the fund will be affected by the long delay; thus, we should make a firm decision. The government should exercise the macro-control function to the rural social endowment insurance, that is to formulate the policy to play the role of guidance, propaganda, and supervision, and not directly manage the fund. Industry scholars also appeal to administrative agencies to set up Chinese rural insurance companies, which are regarded as policy insurance institutions. The state gives preferential policies, implements commercial operations, and takes over the current social endowment insurance fund. Social endowment insurance transformed into commercial endowment insurance, continue to underwrite. In addition, the company can also carry out a national crop property insurance business, filling the gap in China. After the establishment of the normal operation, the functions of the Rural Endowment Insurance Division of the Ministry of Labor and Social Security are transferred to the CIRC (Lu, 2008).

⑥ *The aging industry will actively be developed and the consumer market for the elderly will be opened.* Aging population calls for the aging industry. The so-called aging industry is an industry driven by the growth of the demand of the elderly consumer market. It includes all facilities and economic activities related to meeting the special needs of the elderly, such as production, operation, and services. Compared with the developed countries, the aging industry in China has not been fully developed, the enterprise operators have been slow to respond to the rising demand for the elderly consumer market, and there is no corresponding supporting and guiding policy for the government. But the public should be optimistic about the development of the aging industry (Wang, 2012b). First, there are a large absolute number of elderly people in China and the scale of the elderly consumer market is huge. Second, the living standards of the Chinese people have gradually improved and the income of urban and rural residents has steadily increased. Third, there are many regional differences and many levels of demand in China, which provides a variety of options for the development of the aging industry. Fourth, the demand for social

services is increasing (Li, 2016). According to the 1% sample survey in 1995, the widowed rate of the elderly was 33.4%, the single family was 25%, the one-child policy continued to be carried out, the family structure of "4-2-1" was widespread, and the proportion of single households will increase. A large number of elderly people living alone will have an increasing demand for services. Fifth, the consumption ability of the urban elderly should not be underestimated (Chen, 2014).

The aging industry is an important part of the elderly security undertakings, namely: The cause of the elderly that people usually talk about is treated more from the perspective of social development as a public welfare undertaking. With the development of market economy, the government responsible for supporting the "three nothingness" elderly in the elderly cause still belongs to the social public welfare undertakings. In order to meet the material and cultural consumption needs of the elderly, some enterprises should turn to consider a series of economic problems such as production, consumption, and employment from an industrial perspective, and should act according to market rules (Wei, 2008). However, under the socialist system, the fundamental purpose of developing the aging industry is to improve the quality of life of the elderly, not just for the profit of the operators. To this end, the government has created many conditions to support the development of the aging industry, including policy support (Li, 2011). Taking into account the low-income level of the elderly population as a whole, the preferential policy of low tax or tax exemption is adopted for the living service market for the elderly, so as to enable operators engaged in such markets to make appropriate profits and expand their industries. It can be seen that in order to manage the elderly industry, we must insist on the combination of social and economic benefits (Wang, 2007).

With the rapid formation of an aging society in China, the issue of old-age care is also becoming increasingly prominent. In 2000, the population over 65 accounted for 7% of China's total population, an increase of 40% over 1982. The ratio between the elderly over 65 and the population aged 16-64, that is, the dependency rate for the elderly is expected to rise from 11% in 1999 to 35% in 2050 (Chen, 2016). It is more difficult for children to take care of the elderly, so it is necessary for professional nursing homes to provide elderly care

services, break down the pressure of family care, and improve the ability of professionalization and quality of elderly care services.

With the rapid aging of the Chinese population, the insecure elderly care is becoming increasingly prominent. In 2000, the population over 65 accounted for 7% of the Chinese population, an increase of 40% over 1982. The ratio of people aged 65 and older to the population aged 16-64 (known as the elderly support rate) is expected to rise from 11% in 1999 to 35% in 2050 (Chen, 2016). Therefore, it will be more difficult for children to take care of their old parents. Under such circumstances, professional nursing homes are needed to provide professional and high-quality nursing care for the elderly to release the pressure of family support for the aged.

2.1.3 Current situation of China's population structure and population aging

As shown in Figures 2-3, 2-4, and 2-5, the population aged 0-14 years in China was 226.81 million in 2015; and the population aged 15-64 years in 2015 was 1.003.47 billion; from 2005 to 2010, the population aged 0-14 years in China declined year by year; in 2010, the population aged 0-14 reached the lowest level in nearly 10 years, which was 222.59 million. In 2015, the population aged 65 and above was 144.34 million. In the past decade, the population aged 65 and above increased year by year, and the demographic dividend has gradually disappeared. The disappearance of the demographic dividend means that the peak of population aging is approaching and the value-creating labor force is decreasing. Therefore, the seriousness of the pension problem emerges (Li, 2015).

As shown in Figure 2-6, the total dependency ratio in China in 2015 was 37%, the dependency ratio for children was 22.6%, and the dependency ratio for the elderly was 14.3%. From 2005 to 2015, China's child-rearing ratio declined year by year, while the elderly-rearing ratio increased year by year.

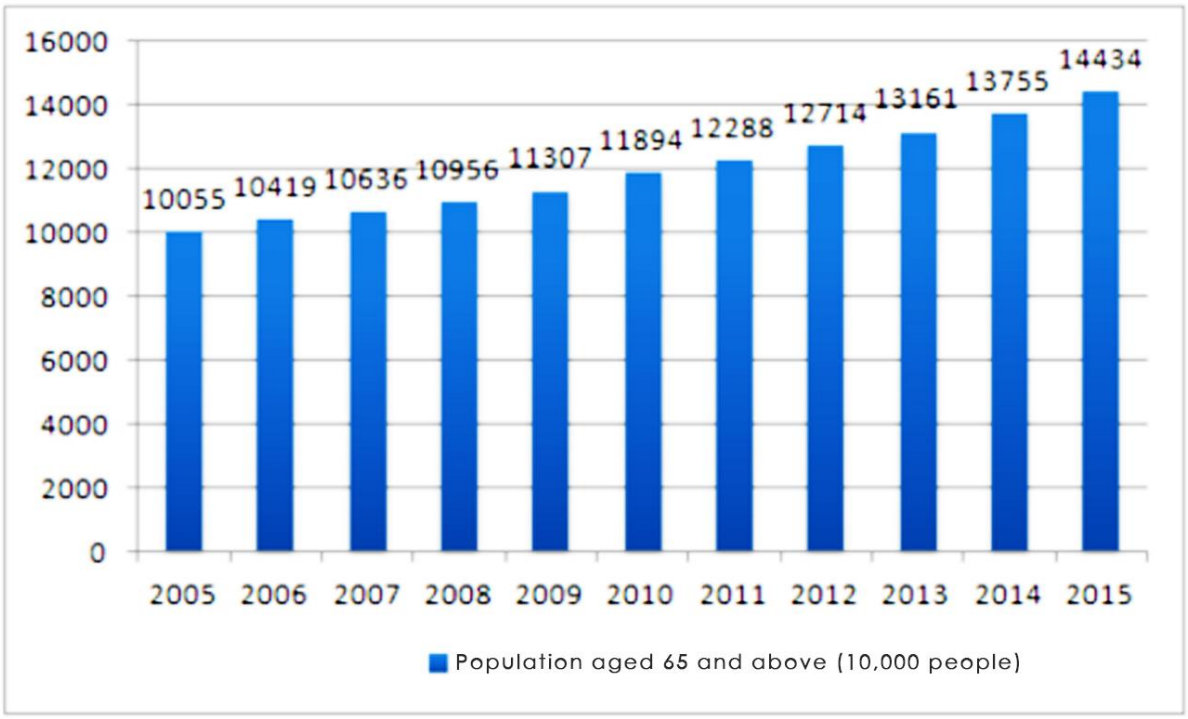

Figure 2-3 The changing trend chart of China' s population aged 65 and above from 2005 to 2015

Source: Li (2016)

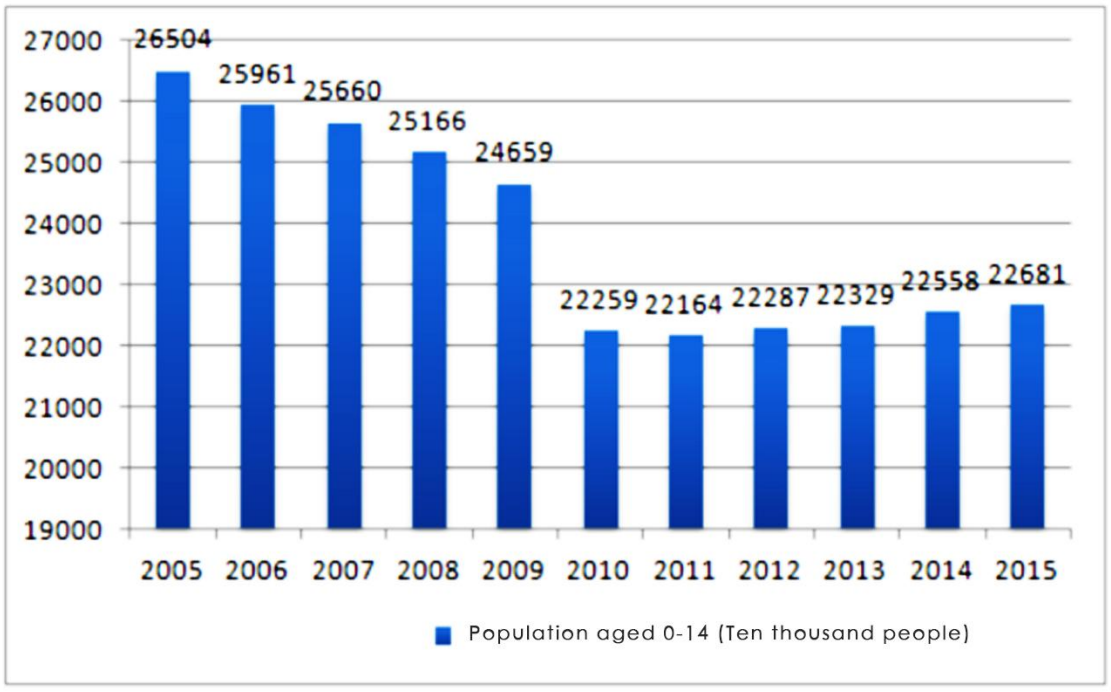

Figure 2-4 The changing trend chart of China' s population aged 0-14 from 2005 to 2015

Source: Chen (2016)

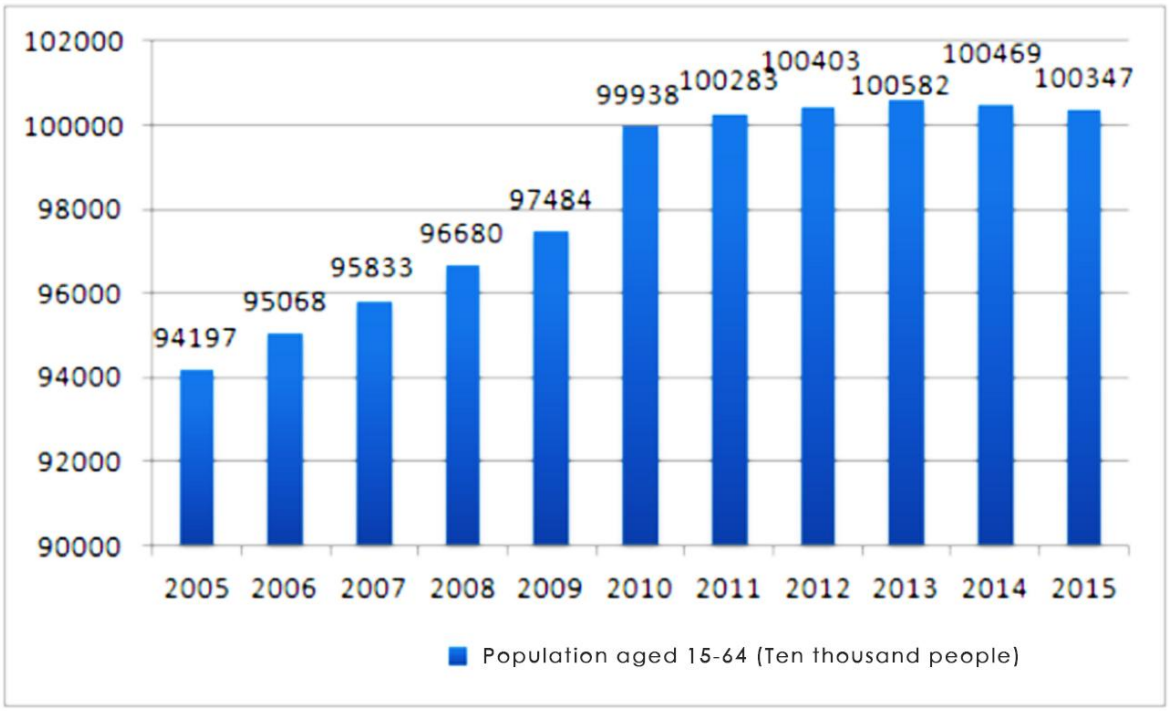

Figure 2-5 The changing trend chart of China' s population aged 15-64 from 2005 to 2015

Source: Chen (2016)

As shown in Figure 2-7, the population aged 60 and over is projected to reach 222 million in 2015, accounting for 16.2% of the total population. It is estimated that by 2020, the elderly population will reach 248 million and the aging level will reach 17.17 %, of which the elderly population over 80 years old will reach 30.67 million. In 2025, the population over the age of 60 will reach 300 million, making it a super-elderly country (Li, 2015). Considering the increase in family planning work in the late 1970s, it is estimated that the aging process in China will reach its peak by 2040, and then the aging process will enter a period of deceleration (Zhang, 2017).

As shown in Table 2-1, it is predicted that China's population reached 1.36976 billion in 2016 and will reach 1.37702 billion in 2020 and 1.39349 billion in 2036 (Ye, 2017). In addition, this prediction does not take into account the changes in the birth rate caused by the sex ratio, hence the increase of aging has a restrictive effect on population growth.

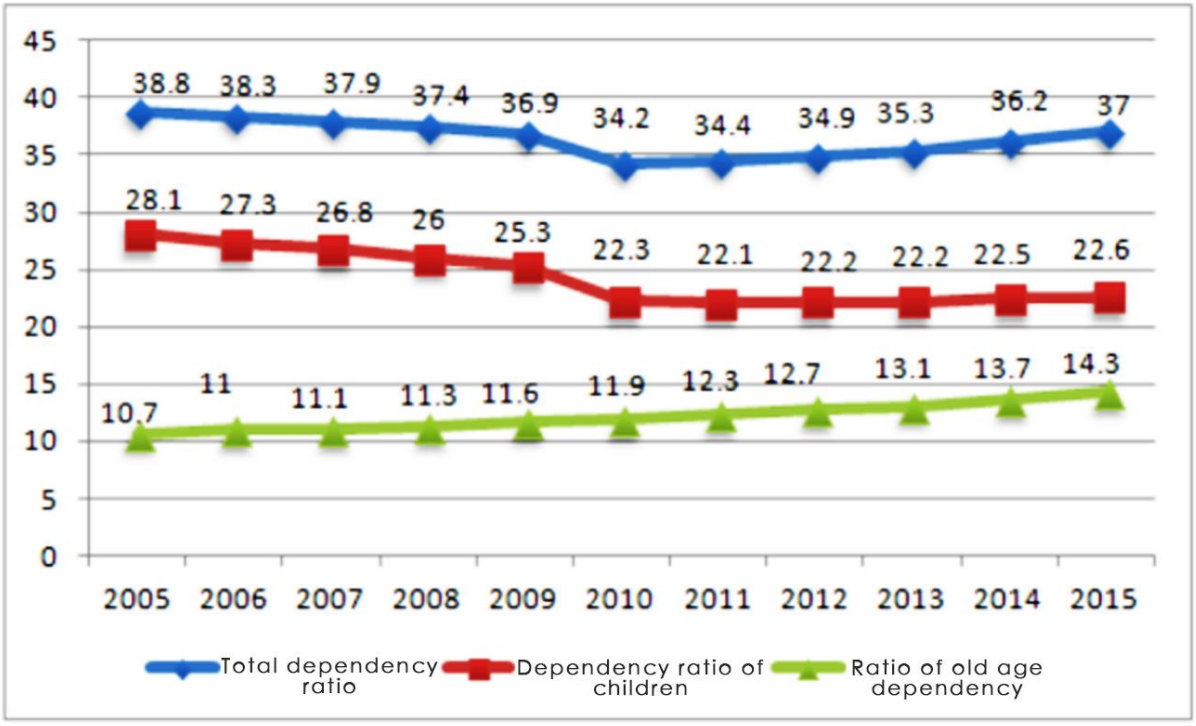

Figure 2-6 Total dependency ratio, dependency ratio for children and dependency ratio of the elderly in China from 2005 to 2015

Source: Li (2015)

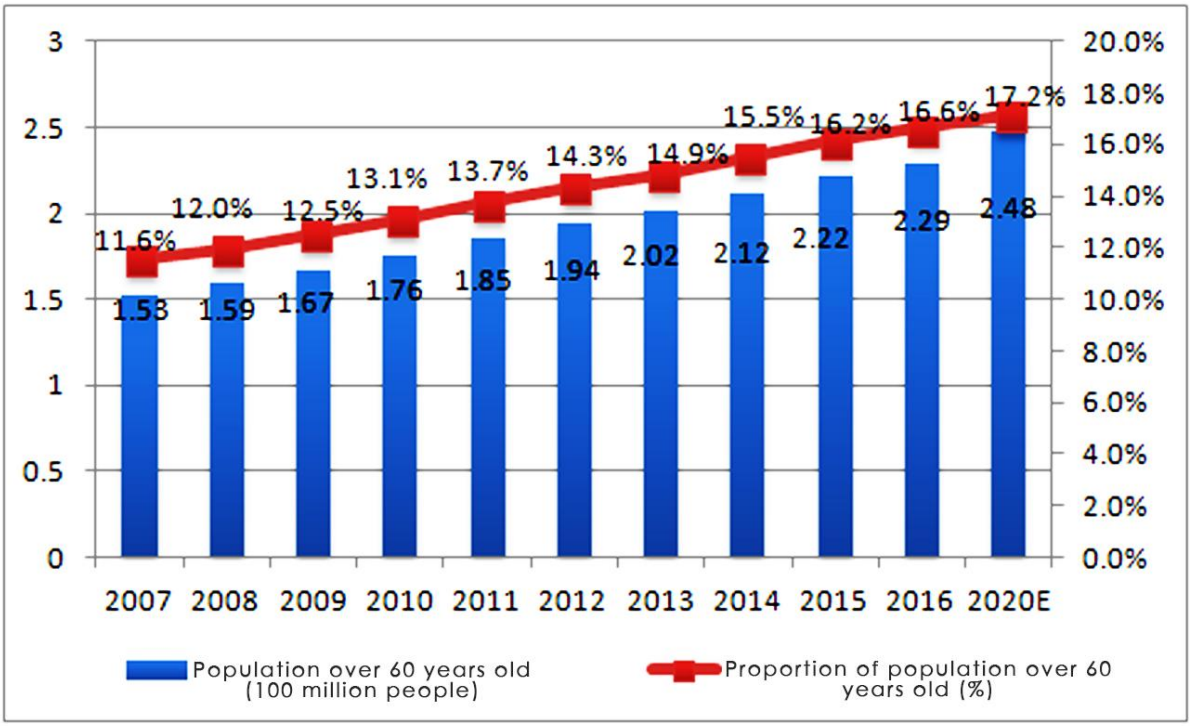

Figure 2-7 The number and proportion of China's population over 60 years old from 2007 to 2020

Source: Chen (2016)

Table 2-1 Population forecast for 2016-2036 (Ten thousand people)

Year	Predicted population	Year	Predicted population	Year	Predicted population
2016	136976	2023	138299	2030	139100
2017	137237	2024	138471	2031	139159
2018	137441	2025	138620	2032	139210
2019	137594	2026	138747	2033	139253
2020	137702	2027	138857	2034	139290
2021	137969	2028	138951	2035	139322
2022	138100	2029	139031	2036	139349

Sources: Xin (2016)

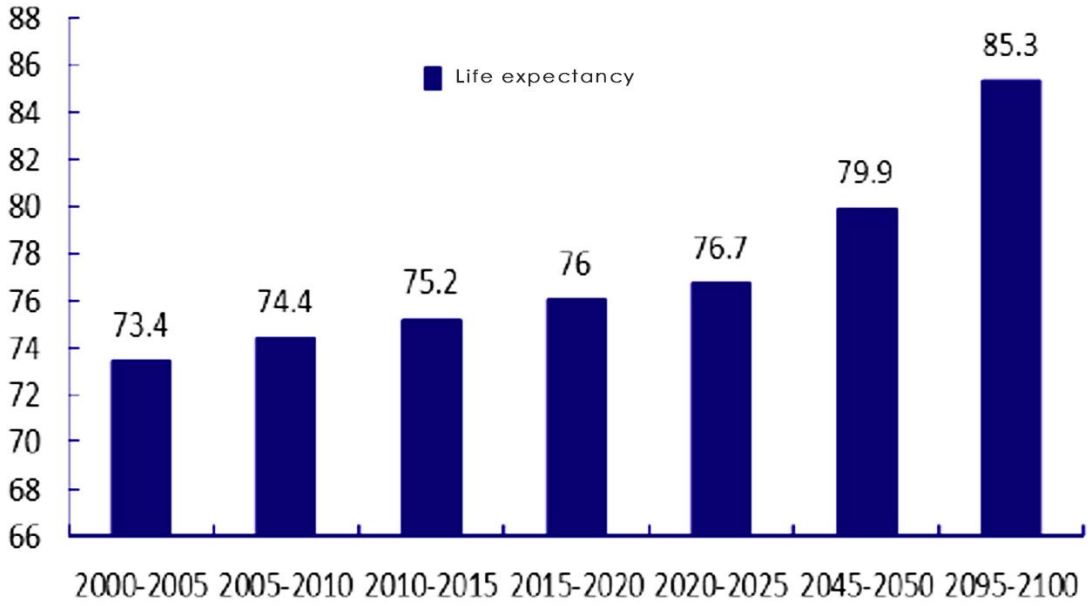

Figure 2-8 Life expectancy prediction in China

Source: Zhang and Zeng (2010)

As shown in Figure 2-8, from the perspective of population structure, the number of elderly people in China has been growing steadily from 2010 to 2050 (Zhang & Zeng, 2010). As shown in Figure 2-9, the number of disabled elderly in China's overall elderly population continues to increase (Yuan, 2014). In 2015 alone, the number of disabled elderly in China may rise from 6.25 million at this stage to 18.75 million in 2050, an increase of 200% in 35 years.

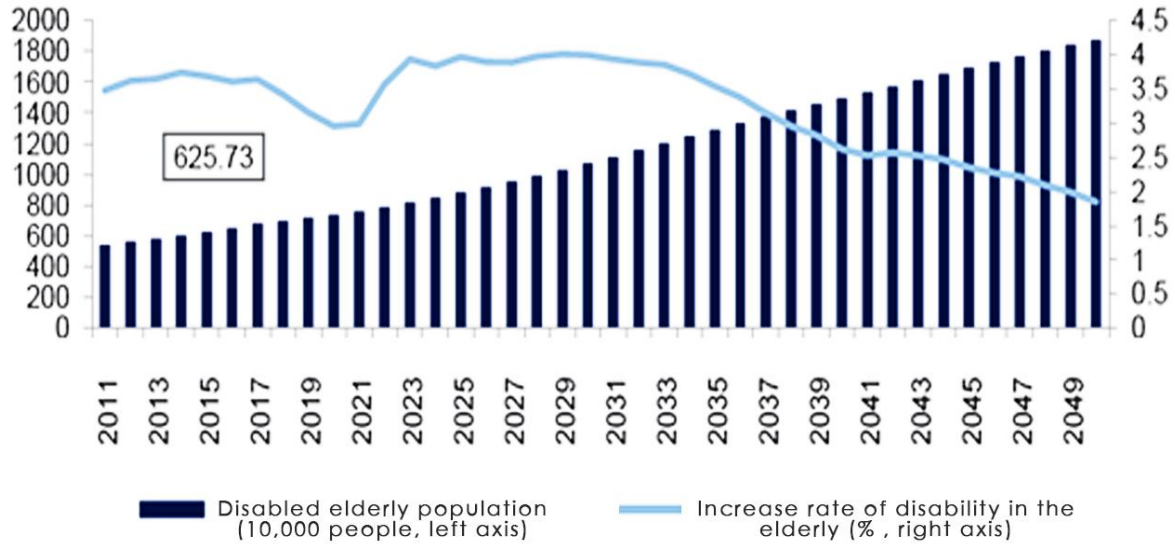

Figure 2-9 Statistical analysis of disabled elderly population in China

Source: Yuan (2014)

As shown in Figure 2-10, the old-age dependency ratio, a measure of the burden of an aging society, has been accelerating since 2015 and will rise to 16.9% by 2020. The total dependency ratio, which includes the dependency ratio of teenagers and children, will exceed 50% by 2030 (Li, 2015). Figures show that the rapid decline of the proportion of the labor force will seriously aggravate the future social burden, and for the "old people" who have worked all their lives, the efficient, effective, and professional pension system/industry is the only way to solve the heavy pension burden brought by the aging society (Lin, 2012).

With the rapid aging of the Chinese population, the insecure elderly care is becoming increasingly prominent. In 2000, the population over 65 accounted for 7% of the Chinese population, an increase of 40% over 1982. The ratio of people aged 65 and older to the population aged 16-64 (known as the elderly support rate) is expected to rise from 11% in 1999 to 35% in 2050 (Chen, 2016). Therefore, it will be more difficult for children to take care of their old parents. Under such circumstances, professional nursing homes are needed to provide professional and high-quality nursing care for the elderly to release the pressure of family support for the aged.

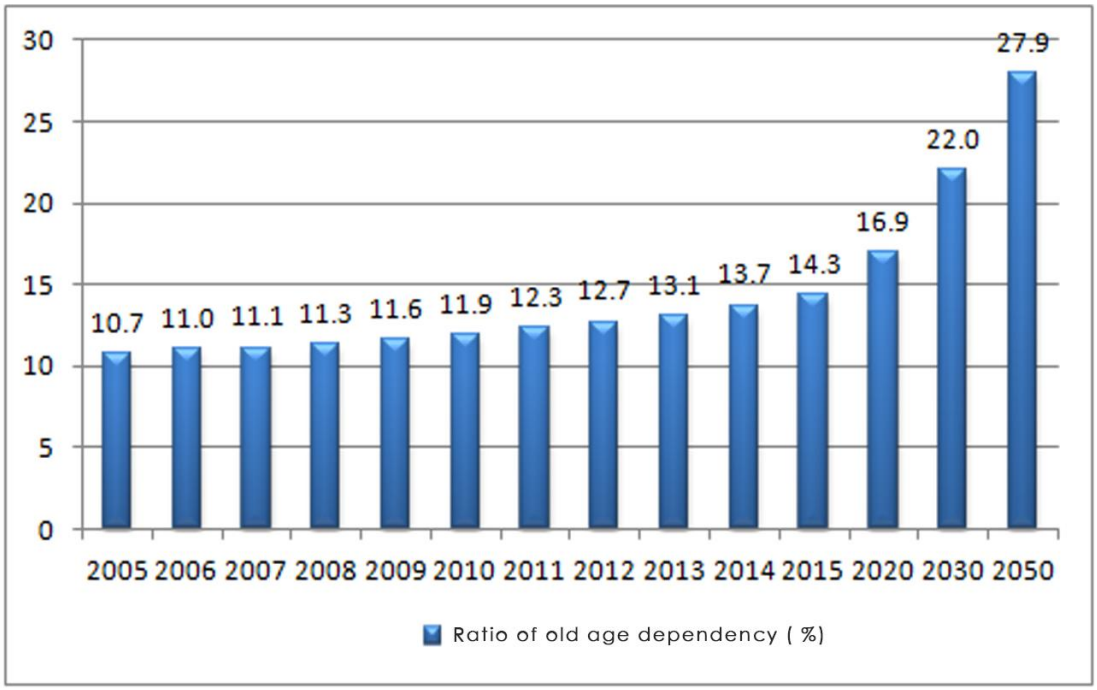

Figure 2-10 Prediction of the dependency ratio of the elderly population in China

Source: Li (2015)

2.1.4 The population aging and the existing situation of old-age care industry in Beijing

As the capital of China and surveyed city in this study, Beijing completed its population transition in 1990, ten years earlier than all other cities across China. China entered an old-age society at the end of 1999 (Wu, 2014). Beijing takes lead in coping with the challenges by vigorously developing the elderly care service industry and actively implementing the major national strategic plan on the nursing care for the aged (Beijing Civil Affairs Bureau, 2016).

Beijing has a large population of elderly people with household registration. By the end of 2012, Beijing has 2.629 million registered people aged 60 years or above, accounting for 20.3% of the total population in Beijing; 1.846 million registered people aged 65 years or older, accounting for 14.2% of the total population in Beijing, and 426,000 registered people aged 80 years or above, accounting for 3.3% of the total population in Beijing. The percentage of the registered population aged 60 and above in Beijing is 20.3%, second only to that of the same age group in Shanghai (25.7%), ranking second in China and far higher than the national average (14.3%) (Liu, 2014). From 2008 to 2012, the average annual growth rate of the elderly population aged 60 years and over in Beijing was 4.8%. The increasing trend of

the elderly population, such as the very old people, childless elderly families, seniors losing abilities to take care of themselves, becomes obvious. The average annual growth rate of the registered elderly population aged 80 years and over was 9.7%, accounting for 16.2% of the elderly population with household registration; and the childless elderly people and seniors losing abilities to take care of themselves as percentage of the elderly population with household registration was 18.2% and 5.5%, respectively (Beijing Civil Affairs Bureau, 2016).

The population of Beijing's permanent elderly residents is relatively small. As the city where numerous migrants flow into and work there, Beijing has a huge number of migrants of working age. Therefore, the number of permanent elderly population in Beijing is much lower than that of the registered elderly people (Li, 2015). At the end of 2012, the permanent elderly population in Beijing was 2.868 million, accounting for 13.9% of the total population, 6.4% lower than that of the registered elderly population (Zuo et al., 2011). The impact of migrants on the aging of the permanent population in Beijing presents a "peak-cutting and valley-filling" effect (Beijing Civil Affairs Bureau, 2016). At present, Beijing has a net increase of 150 thousand of the elderly population every year. By 2030, the elderly population in Beijing is expected to exceed 5 million, accounting for about 30% of the total population in Beijing. That is to say, there will be one elderly person in every four people. It is estimated that the elderly population will reach a peak of 6.7 million by 2050, with one elderly person in every three people (Zuo et al., 2011). The elderly support rate is another indicator to measure the aging problem. By 2016, Beijing's elderly support rate will be 27.6%, up 1.6% from 2010 (Lin, 2012). That means that every 100 working people aged 15-59 must take care of 27.6 elderly people aged over 60.

Among them, Fengtai district of Beijing has the highest degree of aging, which is mainly manifested as a high degree of aging, rapid growth, aging, imbalance, and heavy dependency, which are also the five characteristics summarized in the report of Beijing's aging population (Sun, 2017). By the end of 2016, there were about 3.292 million elderly people aged 60 and above in the city, accounting for 24.1% of the total household registration population. The

aging degree of the household registration population ranked second in the country. Among them, 164,900 elderly people have been identified as disabled elderly (Jiang, 2017).

The elderly population aged 80 and above in Beijing increased from 426,000 in 2012 to 595,000 in 2016 (Zhang, 2017). Centenarians increased from 544 in 2012 to 751 in 2016 (Chai, 2018). By the end of 2016, the registered elderly population in Beijing's six districts was 2.166 million, accounting for 65.8% of the city's elderly population. The elderly population of non-peasant households is 2.69 million, accounting for 81.7% of the city's elderly population (Jiang, 2017).

Fengtai District has the highest degree of population aging. Sun, a scholar, conducted a survey in 2017 and found that the proportion of the elderly population in Fengtai district was 29% (Sun, 2017). Daxing District has the lowest aging rate, with the proportion of the elderly population of 20.3%. Chaoyang District has the largest household registered elderly population, with 573,000 people, followed by Haidian District with 494,000 people, and Xicheng District 392,000 people, respectively. The average life expectancy of the elderly in Beijing has once again increased to 82.03 years old, an increase of 0.68 years compared with 2012 (Qing, 2017).

Jiang conducted research on the pressure of "supporting the old and carrying the young" in the other labor force in 2017 (Jiang, 2017). According to Jiang's report and statistics, the dependency coefficient of children and the elderly increased from 2012 to 2016, which means that the pressure of "supporting the old and carrying the young" increased. The coefficient of child dependency is the number of children divided by the number of working-age population. The old-age dependency coefficient is the number of the elderly divided by the number of the working-age population. Statistics show that the child dependency coefficient increased from 14.1% in 2012 to 19.1% in 2016, an increase of 5 percentage points. The old-age dependency coefficient increased by 8.7% from 29.4% in 2012 to 38.1%. From the last five years (2007 to 2011), the elderly dependency coefficient increased from 23.6% to 27.6%, and the number of elderly people to be supported per 100 labor force increased by 4 (Gao, 2013). While between 2012 and 2016, the elderly people supported by every 100 labor force increased by nearly 9,

which was more than doubled. This means there is increasing pressure on the workforce to support the elderly.

With the pressure increase of the elderly caring, the various guarantees should also be kept up. Taking the old-age pension as an example, the average old-age pension for retirees of enterprises in this municipality, the basic pension for urban and rural residents, and the welfare pension for urban and rural residents have been increasing year by year. In 2016, the number of urban employees covered by basic medical insurance reached 15.1762 million, including 2,777,600 retirees, with an increase 82,500 over the previous year. The number of urban residents covered by medical insurance reached 1,911,900, including 199,300 urban elderly people, with an increase of 1,300 over the previous year 2,119,000 people participated in the new rural cooperative medical care program (Lu, 2016).

In 2016, a subsidy of 580 million yuan for home-based care services was issued for 595,000 elderly people aged 80 years or above all over the city; 51.34 million yuan of old age allowance was issued for 44,000 elderly people aged 90 years or above; 2,957 person-times of medical subsidies, totaling 7.77 million yuan was issued for eligible elderly people aged 95 or above (Ye, 2017).

Beijing's medical services cover more than 90 percent of old-age care institutions. According to statistics the city has built 350 community nursing services and rural happy old age stations (Zhang, 2017), and plans to build 1000 in the 13th Five-Year Period. The number of beds in old-age nursing institutions in the city increased from 80,100 in 2012 to 126,000 in 2016. Of the city's 214 public old-age nursing institutions, 52.2% has private management. The utilization rate of beds in the city's public old-age nursing institutions increased from the past 49.6% to 54.7% and attendance rate increased by 14.2% (Chen, 2016).

By the end of 2016, the number of old-age nursing institutions with designated medical institutions for medical insurance reached 76 and those signing formal written agreements with surrounding medical institutions reached 305. By the end of 2016, the community health service agencies in the city that signed a contract for on-site medical and health services for the elderly had reached a scale of 1,803,500 people. Reimbursement for community drug use has been expanded to 2,510 varieties (Han, 2017).

"Beijing pass-old-age nursing and assistance of the disabled card" can provide the elderly and disabled people with 110 services in six categories, including life care, housekeeping services, rehabilitation nursing, spiritual comfort, and education for the elderly.

The high proportion of the aging population in Beijing means that a family needs to support more elderly people. The burden of each family for the elderly support is relatively heavy, and meanwhile, the current old-age care industry still cannot offer professional and high-quality elderly care services. In 2016, there were 501 middle-end nursing homes and 16 high-end nursing homes in Beijing, providing 150 thousand nursing home beds and 1200 high-end apartments for seniors. Nearly 20,000 people in Beijing need high-end apartments for elderly care services every year, and nearly 8,000 people who are dissatisfied with the high-end old-age service complain to Beijing Civil Affairs Bureau or Consumer Association (Beijing Civil Affairs Bureau, 2016). Beijing's current high-end elder care service level and supply are far from meeting the needs of senior citizens in Beijing.

2.2 Current situation of the demand for high-end elder care services in China

Since China entered the aging society in 1999, the size of the elderly population has been increasing. With the improvement of living standards and the change of people's traditional ideas, the current nursing homes are unable to meet the needs of most middle and high-end elderly people because of poor service quality, so the high-end nursing institutions for the aged have been developed quickly.

Studies have found that whether the elderly are healthy or not, they prefer institutions that are capable of providing high-end and high-quality health care services when choosing old-age nursing institutions. In addition, they hope that the nursing institution can be close to their family and friends; thus, the location of the nursing institution is also an important factor for them to choose. In addition, a good environment and a harmonious family atmosphere can also attract the elderly to live in and continuously keep them in institutions for care (Li &

Huang, 2017). Finally, compared with living in groups, the elderly prefer to have private living space.

In the market of old-age care services, although there are many low-end old-age care institutions such as rural nursing homes and rural welfare homes, most old-age care institutions, such as urban nursing homes and welfare homes, are at the middle level of the old-age housing market; only a fraction of the rest is considered high-end old-age care institutions. The occupancy rate of old-age care institutions varies according to their location (Han, 2017). Middle-end old-age care institutions tend to have a high occupancy rate because most of them have relatively new equipment and facilities, complete services, and the price is generally acceptable for most middle-income families. The occupancy rate of high-end old-age care institutions is the lowest in first-tier, second-tier, and third-tier cities, which is mainly caused by the misalignment of fees, site selection, and services of high-end old-age care institutions (Liu, 2016).

The existing high-end old-age care institutions often use leasing mode, which is not consistent with the performance of consumer demand. Compared with the high monthly rent or membership fee, consumers prefer to own a house (Dai, 2008). At the same time, many high-end old-age care institutions are located in the suburbs, which makes many old people who want to live near their families and friends reluctant to move in. In addition, some high-end old-age care institutions do not have good medical facilities, which are exactly the key factors for the elderly to choose old-age care services (Wei, 2008).

At present, there are five main business models for elderly care. According to the analysis of consumer needs and market trends, five business models and service configurations for the high-end elderly housing market are summarized (see Table 2-2).

Table 2-2 China's high-end elderly housing market business model and service allocation

Business model	Services provided			Normal locations		Rental and sale condition		Main room type		Risk warning
	Independent	Assistive	Nursing	Urban	Suburban	Rent	Sale	Multiple bedded room	Apartment	
High-end nursing institute	√	√	√	√	√	√		√		●Low risk, a traditional and mature model in the elderly housing market, which is partly changed from the old hotel or apartment. ●Most are located in the center of the city and are in high demand. ●There are already a number of projects, mainly in Beijing.
Integrated elderly community	√	√	√		√	√	√		√	●Medium risk, an emerging area domestically. ●The main risk is reflected in the long investment or cost recovery cycle, uncertain consumer acceptance and so on. ●There are a number of projects scattered in many cities in China, such as Beijing, Shanghai, and Hangzhou.
Community supporting elderly apartment	√			√	√	√	√		√	●With risk from medium to low, it is an extremely new mode in the old-age housing market and is an extension of the traditional old-age real estate. ●Pilot projects with only a handful of developers.
High-end nursing institute		√	√	√		√			√	●With risk from medium to high, it is an extremely new mode in the old-age housing market, but will be a high demand market in the long run. ●It provides high-end medical services and competes with hospitals. ●With very few projects, and very few successful cases.
Vocation sanatorium	√			√	√	√			√	●With risk from medium to high, it is a new mode in the old-age housing market and remains unclear whether it will succeed and mature in the future. ●With very few current and expected projects.

Source: Li and Huang (2017)

First of all, high-end nursing institutions are generally located in cities, and most of them only provide group living. These are mainly for healthy elderly people, but they also receive some elderly people who need assisted living services or round-the-clock medical care. Like ordinary nursing institutions, high-end nursing institutions provide group living services, and the elderly need to share some facilities (such as toilets) (Wang, 2013). Such institutions tend to be small and are often operated by the owners themselves. In addition, although some high-end nursing institutions offer basic medical services, they are generally close to urban areas, so there is no need to set up a separate affiliated hospital. After investigation and analysis of nursing institutions applying this business model, it is found that the occupancy rates of different institutions are significantly different (Han & Sun, 2014). This is largely due to differences in the location of nursing institutions, fees, and medical services provided, with institutions that can provide care and medical services often having higher occupancy rates than those that cannot (Si, 2013). For example, Taishen Xianghe, a high-end nursing home in Beijing's downtown area, is widely recognized as a model for success. Its biggest advantage is that it provides unique TCM services. Meanwhile, its reasonable price and high-quality services are also well received. Now old people need to wait in line to live in (Zhang, 2014).

The second business model is the integrated elderly community, which is mainly for the elderly who can live independently, but there will also be a special area to provide care services for them (Pan & Wu, 2016). As a community, these elderly care institutions are usually composed of independent living areas and a series of living facilities, including e.g. supporting supermarkets, post offices, and banks; thus, the integrated elderly community needs many external suppliers providing different services. In addition, these communities are often located near hospitals or are equipped with hospitals internally. Although the integrated elderly community provides the most comprehensive services, its occupancy rate is mostly in the middle or lower level. This is because most of these communities are in the suburbs and charge high membership fees or rents. There are also relatively successful examples of this business model, which requires developers to be able to use the selling model to attract buyers for investment purposes or to have advantages in terms of geographical location and medical services (Pu & Xiao, 2017). In fact, operating agencies tend to prefer the leasing model, while

some operating agencies can only take the leasing model instead of the sales model because of the nature of the land. But the analysis shows that if the rental model is adopted, it will take 10 to 15 years to recover the investment under the premise of an average occupancy rate of 50% (Pan & Wu, 2016). For example, Qinheyuan Elderly Apartment is the first and the only integrated elderly community in Shanghai that provides comprehensive services. There is a hospital in Qinheyuan Community, so the equipment and services in this community, especially the medical services, are considered to meet the high-end standards. However, Qinheyuan Community is located in the suburbs and charges so high that its occupancy rate does not reach 100% (Zhang, 2014).

The third business model is the community supporting apartment for the elder, which is a business model being piloted by real estate developers. This model provides apartments for the elderly who want to live close to their children and live independently (Lu, 2009). The housing design of the community supporting apartment for the elder is similar to that of the general apartment, but it is more suitable for the elder to live in; in addition, this model is only for sale, just like other real estate projects. So far, there has been only one project – Xiaoxian Fang Greenland 21 City located in Kunshan – using this business model, but the occupancy rate is very high (Huang & Li, 2013). In this community supporting apartment, many consumers buy apartments for the elderly to combat inflation or asset appreciation, leading to a high rate of sales of Xiaoxian Fang. Although investors have found the business model viable, developers may not be able to make higher profits than normal real estate projects because of higher construction costs (Zhang, 2014).

The fifth business model is the vocation sanatorium in a tourist resort, a business model that provides a touristic residence for the elderly who can live independently (Chen, 2010). These vacation sanatoriums are usually located in scenic resorts and are targeted at healthy, well-paid elderly people who like to travel. This business model is more like a hotel, with limited medical services. Clients typically stay in nursing homes for only a few weeks or months. At present, there are few such institutions and due to the small number of consumer groups, The Classic 500 nursing home operated in this model in South Korea has a relatively successful operation effect, but there are few successful cases in China (Pan & Wu, 2016).

The defined fifth business model is a high-end nursing home, which is a relatively promising business model. Its target group has a high level of nursing needs, namely those old people who need assisted living care services and round-the-clock medical care services (Qi, 2015). The biggest advantage of high-end nursing homes is that they can provide medical care services, generally have internal hospitals and are equipped with standard medical care equipment (Ministry of Human Resources and Social Security of China, 2015). In such elderly nursing institutions, as the living needs of the elderly are limited by physical conditions, supporting facilities in nursing homes can be relatively simple, providing just some basic recreational and living facilities, which allows nursing institutions to provide services to the elderly independent of external suppliers (Xie, 2010). High-end nursing institutions are generally operated in the form of leasing or membership. Based on its focus and characteristics of medical care, nursing institutions can also enjoy preferential treatment when applying for the purchase of land from the government. However, due to the high market entry threshold of nursing institutions and the need to invest in medical care services, the number of high-end nursing institutions is still very small. But rigid demand usually drives occupancy rates very high and Beijing Gongheyuan is one of them (Wu, 2016a).

For the above five business models, the accommodation scale, charging standard, and occupancy situation are different. We summarize the representative project examples in each business model (see Table 2-3):

Because this study involves Sino-Us cooperation mode of nursing home operation, the operation cases of American old-age nursing institutions are reviewed in the research background stage. The most common and mature model in the United States is the integrated elder community.

Erickson Living was founded in 1983. The first community is in Baltimore County, Maryland. The company's core business is the development and operation of elderly livable communities and the main consumer base is the middle class. At present, the group has built 16 retirement communities in Colorado, Illinois, Kansas, Maryland, Massachusetts, Michigan, Missouri, New Jersey, and other places, with a population of more than 21,000 people. The group has 12,000 employees (Zhang, 2006). In addition, the group is now building new

retirement communities in Denver, Kansas City and other places, and is actively seeking opportunities to expand its community coverage network across the United States. The community provides daily services including housekeeping, maintenance, and transportation, and has restaurants, shops, fitness centers, and medical centers. The community has also undertaken some government responsible services such as road repair and has its own unique security and emergency management system (Qi, 2007).

Table 2-3 Examples of projects under various business models

Business Model	Project name	Opening time	The scale of accommodation (person)	Membership fee (Yuan/person)	Monthly rent (Yuan/month)	Occupancy rate
High-end nursing institute	Beijing Taishen Xianghe	2002	1,000	500,000-1,000,000	1,100-4,500	100%
	Beijing Kangmengyuan	2006	500	100,000-500,000	4,000-10,000	20%
	Beijing Amor	2006	400	None	2,600-10,000	25%
	Beijing Shoushan Fuhai	2005	600	None	2,500-5,000	80%
Integrated elderly community	Beijing Sun City	2005	2,800	100,000-200,000	1,500-4,000	90%
	Beijing Yaoyang Elderly Apartment	2010	320	300,000	3,000-5,000	90%
	Shanghai Qinheyuan	2008	1,600	350,000-700,000	2,000-5,8000	45%
	Beijing Yanda Golden Time	2010	2,300	None	4,000-8,000	3%
	Beijing Jiangfu Manor	2009	1,000	1,000,000-1,200,000	Unknown	10%
	Hangzhou Golden Time	2008	1,000	50,000-100,000	3,000-4,000	60%
The community supporting elderly apartment	Xiaoxian Fang	2006	2,000	Only sell	Only sell	100%
	Vanke Xingfuhu	2013	Unknown	Only sell	Only sell	Unknown
High-end nursing institute	Yingzhi Elderly Apartment	2006	100	None	2,000-5,000	100%
	Lecheng Gongheyuan (to be open)	Opening soon	400	Unknown	Unknown	Unknown
Vocation sanatorium	Zhongzi Yinian	2008	1,000	None	3,000-6,000	Affected by the seasons and holidays

Source: Li and Huang (2017)

Given that most elderly people have a fixed retirement income and want to protect their assets for future generations, Erickson Living offers these groups a unique way to pay their bills. Residents of the community can pay a one-time refundable deposit for check-in to secure their ownership of the apartments. As they leave the community, this deposit is 100% refundable to their heirs. In addition, a fixed monthly fee charged by the community will cover utilities, property taxes, and other charges (Zhang, 2006).

Merril Gardens is the top elderly apartment operator in America. The company operates 56 communities in nine states, including Alabama, Arizona, California, Florida, and Georgia, which is able to house more than 7,000 residents (Wan, 2007).

The overall facility planning varies according to every different Merrill Gardens community, aiming at meeting the local elderly community's habits and preferences. Merrill Gardens provides long term and high-quality service for residents through high-quality management and abundant resources.

Merrill Gardens is one of the first private senior pension companies. The vision of the company is to encourage older people to regain their energy and interest, maximize the return of ability when they were young. Since 1993, the CEO of Merrill Gardens, Bill Pettit, has been giving long-term commitment to guide the company in this direction. In the last two decades, the company is growing fast, making acquisitions in a timely manner, and pulling off the Merrill Gardens' commitment to quality (Du, 2006).

In a nutshell, the key to success of comprehensive elderly community project lies in the right geographical location, comfortable living environment, excellent service system and reasonable charging standard (Dai, 2008). However, there are still quite a few barriers to this pension model to enter China. In order to ensure the effective promotion of high-end pension programs in China, most high-end pension projects are developed with the help of foreign advanced experience (Xie, 2010).

At present, most of the high-end nursing homes in China are Chinese-foreign joint venture, which focuses on providing high-end personalized care for the elderly. Regarding the service price, the average monthly cost for each elderly is about 50,000 yuan, and the average annual cost is about 600,000 yuan (Wu, 2014). Therefore, only the elder people with good

financial conditions can afford such high-end elderly care services. Disabled elderly and semi-disabled elderly generally have poor physical conditions. They always suffer from a variety of diseases, lack self-care ability and are prone to nursing accidents. For these reasons, they are not accepted by ordinary middle-end and low-end nursing institutions. However, this has provided a good opportunity for Chinese-foreign high-end nursing homes to target this market segment comprising people aged 80 or older, disabled and semi-disabled elders, and elderly with Alzheimer's disease. On one hand, the diversified high-end care services for these types of elder consumers can bring considerable profits for the Chinese-foreign nursing homes. On the other hand, Chinese-foreign nursing homes also receive healthy high-end elderly consumers to make profits. But whether Chinese-foreign nursing homes can successfully operate in the Chinese market is in doubt.

The White Paper on Medical and Nursing Needs of High Consumption Groups in China published by Hurun Research Institute in 2015 analyzed the satisfaction with medical and nursing services among high consumption groups in Beijing and Shanghai. The number of high consumption people in Shanghai ranks third in China and is still growing fastest. Among them, the number of people with more than 10 million yuan increased to 40.1 thousand from 18.1 thousand last year. The number of people with over 100 million yuan has risen to 10.9 thousand, an increase of 1800 over last year. The household disposable income of families with 10 million yuan is 2.73 million yuan, higher than the national average of 1.8 million yuan. But in terms of job and life satisfaction, it scored lower than the national average. Especially in terms of high-end parental support, it scored the lowest (Hurun Research Institute, 2015). The number of high consumption people in Beijing ranks second in China and is increasing relatively fast. Among them, the number of people with more than 10 million yuan reported an increase of 12 thousand from 10.1 thousand last year. The number of people with over 100 million yuan has risen to 8 thousand, an increase of 11 thousand over last year. The household disposable income of families with 10 million yuan is 2.63 million yuan, higher than the national average of 1.8 million yuan. But in terms of job and life satisfaction, it also scored lower than the national average like Shanghai. The problem of high-end parental support is very prominent (see Table 2-4).

Table 2-4 Satisfaction of high consumption people with medical and nursing service in China

	Satisfaction level (Shanghai)	Satisfaction Level (Beijing)	China average satisfaction level
Fortune	8.36	8.12	8.43
Occupation	8.25	8.10	8.29
Health	8.19	8.00	8.19
Security	8.17	8.33	8.24
Living standards	8.11	8.10	8.23
Family medical care	8.05	8.11	8.03
Parental support	7.76	7.61	8.22

Source: Wang (2018)

China's high-end elderly consumers in Beijing and Shanghai care more about the facilities of nursing homes and the service quality of medical staff than their counterparts in other parts of China. They also show less anxiety about staying away from their children and friends than elderly people in other regions across China. Meanwhile, they hope to spend most of their remaining years with their relatives or friends rather than children after retirement (Zhu & Lu, 2001). Therefore, the high-end elderly consumers in Beijing are more independent with less dependence on their children, perhaps because they are influenced by the regional culture of Northern China. The elderly in Beijing prefer to gather with people of equal age and pay more attention to communication and service attitude besides medical skills.

Apart from communication ability and service attitudes, the international brand influence of nursing institutions has a significant impact on the choice of high-end elderly people in China (Zuo et al., 2011). Although public health care centers, especially public senior care centers, are still the top choice for most of the elderly, studies found that private Chinese nursing homes and foreign-funded nursing institutions are more attractive to high-end elderly consumers; 61% of them say they will choose China's private nursing institutions and 58% will look to foreign-funded nursing homes. Although high-end private elderly care is still

uncommon, about 50% of respondents said they would like to try it in the next three years and 40% of them signaled the intention to accept the elder care services of an international nursing home (Hurun Research Institute, 2015). On the other hand, high-end nursing homes integrating healthcare and elderly care services in Beijing are becoming one of the choices of some high-end elderly people. Over the next three years, high-end elderly consumers from Beijing and Shanghai will be more likely to choose nursing homes with international brand influence.

2.3 Competition and development of old-age service industry

2.3.1 Competition in the old-age service industry

2.3.1.1 Tug of war between public and private nursing homes

Old-age nursing institution refers to elderly service organization providing a concentrated living, life care, rehabilitation care, spiritual comfort, cultural entertainment and other services for the elderly, the main service object should be disabled and semi-disabled old people (Zhang, 2014). In 2010, according to the data from the national survey of urban and rural elderly, 24% of the elderly had the intention to stay in a nursing home, 47% of the elderly were willing to live with children (Wang, 2013). However, with the aging of parents of only children, the specialized institutional endowment will certainly play an increasingly important role in the endowment way.

Socialization of old age support represents the general trend. Plus, the continuing low fertility rate makes it difficult for one-child families to fulfill their pension obligations. An increasing number of elderly people are calling for institutional endowment, which is a tendency not to be swayed by man's will (Lu & Ni, 2014). Institutional endowment highlights the supporting role increasingly. Nonetheless, it is not sure about whether the elderly will buy their services, for rigid demand does not necessarily equal effective demand. Therefore, the Chinese government is studying the development of a multi-model of public and private construction to revitalize high-end nursing homes (Chen, 2010).

Public nursing homes can get support from the government in auxiliary public facilities

and policies. By contrast, private nursing homes often find it difficult to enjoy low-cost land-use, tax break, and nearest public medical resources. Taking Beijing as an example, the qualified pilot nursing homes sponsored by social capital can get financial support from the government. Specifically, newly built or renovated nursing homes can receive 16,000 yuan for each bed and 13,000 yuan for each non-nursing bed; each bed renovated by other facilities can receive 10,000 yuan, and each bed without nursing service can receive 8,000 yuan. However, due to different reasons, most private nursing homes cannot obtain financial support from the government (Beijing Civil Affairs Bureau, 2016).

Due to weak social status and lack of preferential policies, private nursing homes are facing greater competitive pressure. With advanced equipment, excellent services, and influence of the state-owned brand, Beijing First Old-age Home finds it difficult to meet the surging demand for its beds. It is estimated that there are about 9,000 elderly consumers waiting for beds in this public nursing home. It is no exaggeration to say that it will take an elderly consumer more than 100 years to be admitted. In striking contrast to its popularity, the average usage rate of private nursing homes in Beijing is only 60%, and the vacancy rate of some private nursing homes is even more than 90% (IDRHS, 2009). Private nursing homes can receive very limited policy support and financial support, which makes them difficult to guarantee high-end service quality while targeting the high-end market.

2.3.1.2 Transformation of private nursing homes

At the present stage, as the demand for high-end nursing homes is increasing, the market share of middle-end nursing homes has relatively shrunk. However, it is still difficult to match these high-end consumers with high-end nursing homes. At present, most of the high-end private nursing homes have limited service skills, so their bed occupancy rate is not high (Zuo et al., 2011). For further development, private high-end nursing homes have to find a way out and seek transformation.

Meanwhile, China's social capital continues to inject capital into the high-end nursing home industry, and the investment in real estate for elder care purpose increased to 450 billion yuan in 2015 (Zhao, 2015). Currently, many listed companies including Poly, Ocean, Green City, Pioneer, Huarun have invested in old-age homes. Although they develop nursing homes

in various ways, they all focus on business-oriented old-age property. Compared with traditional housing enterprises, the Price-Earnings Ratio of the business-oriented property is nearly 10 times higher than non business-oriented property. Besides, public products such as nursing homes always receive considerable attention from the public and, therefore, they will undoubtedly push up the share prices of listed housing enterprises. But how to improve the operational sustainability of nursing homes after initial investment has become a heavily researched hot topic in the industry.

Private nursing homes have partly solved the problem of insufficient operating funds through social capital injection (Information Office of the State Council, 2013). However, how to develop high-end service products in private nursing homes has become a common problem facing private nursing homes in the process of transformation. The influencing factors are summarized as follows: 1. The geographical location affects the development of old-age homes. The nursing homes with convenient transportation generally have a higher occupancy rate than those in remote areas. The elderly people usually put priority to the convenient transportation and travel safety in selecting nursing homes and, therefore, unfavorable geographical location will make nursing homes difficult to attract elderly consumers and meanwhile affect their scale-up (Chen, 2016). 2. The nursing homes providing services with theme features always enjoy high occupancy rate (Guo, 2016). 3. The nursing homes with advanced equipment and natural environment have a higher occupancy rate. Some high-end nursing homes are close to mountains and rivers with a complete set of facilities, providing health preservation services for elderly; some care-oriented nursing homes offer warm and considerate elder care and special care, many of which have been reserved for many years. However, the smaller, ill-conditioned nursing homes with insufficient functions are often vacant (Wu, 2016a). 4. The nursing homes integrating elder care, medical treatment, rehabilitation, and education have a higher occupancy rate than those just providing single services (Wan, 2012). 5. The nursing homes providing high-end service quality have a higher occupancy rate (Wang, 2015). In addition, Zuo et al. (2011) believes that the current service quality of nursing homes is difficult to meet the needs of the elderly, which ignores the living environment, cultural level, economic conditions of elderly consumers,

resulting in their dissatisfaction with the services. In order to adapt to the operation mechanism of the market economy, it is necessary to shift the service model from single old-age care to diversified services covering medical treatment, rehabilitation, cultural entertainment, and high-end service.

2.3.2 Development of the nursing home industry

By the end of 2013, there were 202.43 million elderly people over the age of 60, accounting for 14.9% of China's total population (Sun, 2017). Among them, there are 131.61 million elderly people over the age of 65, accounting for 9.7% of the total population. By the end of 2011, there were 8,830,572 elderly people receiving subsidies (Hurun Research Institute, 2015). Over the next 30 years, the proportion of elderly people aged 60, 65 or over 80 will continue to increase monotonously, indicating that the elderly population in China is gradually expanding, and the demand for nursing homes is also increasing (Hurun Research Institute, 2015).

The number of disabled elderly in China is forecasted as shown in Figure 2-11. According to China's first survey of disabled elderly in urban and rural areas, it is estimated that the number of semi-disabled and disabled elderly will approach 40 million by 2020, of which more than 12 million will be disabled. The number of semi-disabled and disabled elderly is expected to reach 50 million by 2030, of which more than 16 million will be disabled (Zhang et al., 2011b). It is not difficult to see from this data that the number of semi-disabled and disabled elderly in China is gradually increasing. The elderly care and rehabilitation of these elderly need to be provided by nursing homes, leading to the growing demand for elderly care in China.

The increase in China'sa retirement pension will boost the demand for elder care in the future. In 2014, the basic pension for the elderly retired from enterprises increased by 10%, which provided spare cash for the elderly. This is the tenth time that China has raised the pension for the elderly retired from enterprises. Over the past 30 years, China has seen a faster rise in prices. Vegetables, meat, and other foods have risen about 15-20 times, transportation costs have risen about 20 times, and prices in the real estate and health care industries have

risen 50-100 times since they were put on the market in 1998 (Xun, 2013). At this rate of increase, it is predicted that the retirees in the recent three years will spend about one million yuan purchasing basic foodstuffs in the coming 30 years after retirement. As commodity prices rise sharply, pensions will continue to rise accordingly in the future, thus increasing the consumption capacity and demand for elderly care services.

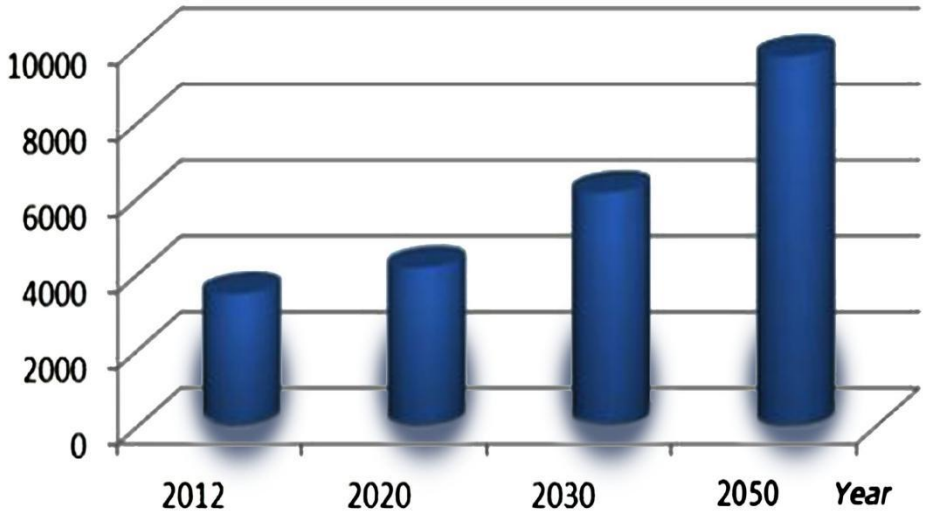

Figure 2-11 Prediction of the number of disabled elderly in China

Source: Zhang et al. (2011a)

There are rich successful foreign experiences that can be learned from by China's old-age care industry. The United States and France launched long-term care commercial insurance in the 1970s and 1980s, respectively. Israel enacted the long term care insurance act in 1986. Then Austria, Germany, the Netherlands, and Japan passed the same laws in 1994, 1995, 1998, and 2000, respectively. On July 1st, 2008, the Republic of Korea promulgated the social care insurance law (Information Office of the State Council, 2013). It can be seen that pension insurance can reduce the financial burden of the elderly, which is an important factor affecting the affordability of the elderly care services for the elderly. At present, the aging problem is serious in some cities of China, and some cities are planning to build endowment care insurance system. In 2012, Qingdao, the first city to formulate a long-term medical and nursing insurance policy, issued a document on building a long-term medical and nursing mechanism. A document issued by China's Ministry of Civil Affairs in 2013 required to formulate subsidy and insurance policies for the elderly and the poor elderly. The Shanghai

municipal government is planning to introduce a long-term insurance mechanism for the elderly to provide a guarantee for elderly care services. This insurance scheme includes pension insurance fund, geriatric care insurance fund, and geriatric care commercial insurance. Some commercial insurance companies in Beijing have also begun to explore long-term endowment insurance policies and develop related insurance products to cover the care costs for the elderly. With the continuous improvement of the endowment insurance system, the demand for the aged care service industry will also increase significantly.

The comprehensive nursing service skills in nursing homes still has much room for improvement. On the one hand, the hardware facilities, indoor structure, and supporting facilities of the nursing home need to be improved and optimized. In addition, most nursing staff in nursing homes are older, less educated and insufficient in nursing services ability and meanwhile has poor communication skills, which makes it difficult to meet the high-end needs of the elderly. At the same time, most nursing homes do not have medical services. All these factors affect the increase of consumer numbers in nursing homes, which points out the direction for the future development of the nursing home market. The future development of the old-age industry will strengthen the service system in an all-around way. Day care, medical treatment, psychological consultation, emergency rescue, and other services should cover all elderly people. Qualified daily care centers and elderly activity centers should be provided in all urban communities. More than 90% of cities and 60% of rural communities need to establish comprehensive service centers including nursing services.

Chapter 3: Literature Review

The following three main concepts were employed throughout the investigation of this thesis: service quality, consumer satisfaction, and market segmentation.

3.1 Service quality

3.1.1 Concept of service quality

Service has a variety of connotations. The American Marketing Association has conducted a systematic review of the definition of service (American Marketing Association, 1988). Scholars have defined it from different perspectives such as economics, service marketing, service process, service characteristics, and in comparison with tangible products. Although different researchers and organizations have different definitions of service, they believe that services are essential to meet specific consumer's needs.

The American Marketing Association (1988) defined service as an activity or a sense of satisfaction in the sale of goods or commodities. Judd (1964) defines services as market transactions that do not involve changes in ownership. Grönroos (1984) defines service as one or a series of behaviors taking place between consumers and service providers, tangible products or service systems in an invisible way, which can meet consumer's needs. Kotler (2002) defines service as invisible activities or benefits provided by one party to the other without causing any transfer of ownership, which may or may not be related to the actual product. Tang et al. (2015) argue that service is about sincerely offering help to others for profits. Service is a one-off or a series of activities involving consumers and service providers. A complete service is a process through which services are sold by the service provider and consumed by consumers. Lei (2007) argued that service refers to one or a series of paid activities that can bring benefit or satisfaction to people. There are two types of services: one is service products, which provides core benefits or value for consumers, such as intangible products or services sold by enterprises for profits; the other is consumer service, which aims to provide free value-added services for the consumer who have purchased products or services.

The service provided by the nursing home has the characteristics of specificity and

diversity. Therefore, old-age care institutions need to provide reliable and just-in-time services (Li, 2010). Specifically, service reliability refers to the ability of nursing homes to fulfill the service commitment honestly and the assessment of consumers on whether the original commitment of the service enterprise has been fulfilled; Just-in-Time services mean the service enterprise stands ready to provide consumers with fast and effective service at any time. The services provided by nursing homes also include empathy services and assurance services. Among them, empathy services require service providers always think in consumer's position, understand and meet their actual needs and give special attention to consumers. Assurance of services means the service staff should be competent for their work and ensure good service attitude (Parasuraman et al., 1988).

With the development of the industrial revolution and commodity economy, "Quality" has played an increasingly important role in people's life. Since the introduction of this concept, there has been a growing demand for service quality and extra demand for service quality improvement.

The concept of quality was introduced by Juran (1951), who changes the quality assessment standards and defines quality as "applicability", that is, the final products quality is assessed based on the applicability of the products or whether the consumer needs are met rather than qualification. This definition points out that quality is actually the degree to which the product meets the requirements of the user, namely, the product's function, cost-effectiveness, service level, service environment, and the ability to meet users' psychological needs (Shen, 2012). Therefore, quality is a comprehensive concept, which does not focus on outstanding technical characteristics of a product, but on its overall performance such as user experience, appearance design, production cost, and delivery efficiency. Moreover, users always put forward specific requirements for the quality of products, which are often influenced by the factors such as the time and place of use, different users, the social environment, and the market competition. Different combination of these factors leads to different quality requirements for the same product. Therefore, quality is not a fixed, but a dynamic, changing and evolving concept that varies with time, place and a specific user. In addition, its connotations are constantly updated and enriched with social development and technological progress.

Service quality refers to the degree to which a set of fixed characteristics of service activities meet the requirements. It has multiple attributes including the consumers' satisfaction level and perception of the service they receive as well as the assessment of

service provider regarding how well the service level satisfies the consumers' needs. It is respectively assessed from the perspectives of consumers and service providers. In a narrow sense, service quality only refers to the quality attributes that occur in the whole process of product delivery by service firms. In a broad sense, service quality refers to the quality attributes of intangible and physical products and services delivered to consumers (Huang, 2008).

From the consumer's point of view, service quality cannot be determined unilaterally by service firms. It should be based on the needs and expectations of consumers and be quantitatively managed with the actual management experience (Hong, 2012). More importantly, service quality is not a self-evaluated quality but represents the subjective perception of service by consumers, which usually varies from person to person. The service provided by different service providers is different at different times; different consumers and even the same consumer have different perceptions of service at different times (Lei, 2007). Service quality is judged by the gap between the perceived service level and expected service level (Wei, 2006). The consumer is satisfied with the service when the perceived service quality is consistent with or better than the expected service quality level. Otherwise, the consumer will be dissatisfied with the service (Li, 2012a). If the perceived service does not meet the specified requirements or expectations of the consumers, they will give a poor evaluation and turn to other service providers for service. When the consumers' expectations of products or service are met or exceeded, they will give the overall service a big thumbs-up, show a willingness to repeat the purchase of the service and even maintain long-term consumer loyalty. Besides, the quality evaluation is not only based on service results, but also on the service process (Zhang et al., 2000). In the process of service delivery, the consumers are not passive service receivers but play an active role in it. Therefore, service quality is determined by a combined perception of service outcome and service process by consumers. Service quality is usually measured by reliability, responsiveness, security, personalization, and acceptability (Dai, 2006). Besides, service quality is also related to consumer loyalty, purchase intention, and repeated purchase behavior (Wang, 2010).

From an enterprise's point of view, service quality has two meanings: first, service quality of enterprise's products; as an important intermediary between supplier and consumers, retailing companies must maintain a lasting and stable purchasing relationship with suppliers and meanwhile provide quality products to consumers. Second, the service quality of staff is formed in the process of service delivery from service staff to consumers. Many staff is

involved in the process of service delivery. In order to grow, enterprises must establish a long-term relationship with consumers. Good service quality of staff can foster and build trust among consumers (Liu, 2006), and meanwhile help enterprises acquire a stable basis of consumers and attract new consumers.

From the perspective of tangible service facilities, service tangible facilities play a decisive role in affecting the choice of consumers for service providers (Wei, 2006). The tangible factors affecting service quality mainly include service environment, service facilities, and the manner and attitude of service staffers. The quality of tangible facility involved in the design of service quality system plays an important role in improving service efficiency, service function, and service utility. It is the guarantee of service quality from the outside environment (Huang, 2008). Consumers often pre-evaluate the quality of the service through tangible factors before they decide to receive services. Liu (2003) argues that tangible factors are the essential material basis for providing services and are often the important influencing factors affecting the first impression and psychological feeling of consumers. The satisfaction with the tangible factors often makes the consumers have a pleasant and receptive feeling to accept services. Otherwise, they will have a feeling of very strong dislike and feel a sense of repulsion, which will directly affect the quality of service.

The perceived quality of intangible service is quite different from that of tangible products. The intangibility of service quality mainly refers to the service quality itself does not have the physical form, but it is also the product of physical or mental labor. The invisible and intangible service quality guarantees the formation of service quality from the inside environment (Huang, 2008). The intangible service quality is often reflected by "service encounter". "Service encounter" refers to all what consumers have felt and seen during the service delivery, including person-to-person interaction, how comfortable of the tangible facilities are, as well as the visual delights of layout and visual identity design. Consumers often have a rough evaluation of the potential service quality as soon as service delivery occurs (Shen, 2012). Because of the intangible characteristics of service, consumers can only judge the service contents and service quality through some side information before purchasing. Therefore, in order to reduce the risk of unsatisfactory service quality, consumers often pay more attention to the service environment and the service experience of other consumers (Li, 2012a). Because service is essentially an invisible process or behavior, with service provision and consumption taking place simultaneously. These characteristics make it more difficult for consumers to judge intangible service quality compared with the quality of

tangible products. Compared with the intangible service, the quality of tangible products can be evaluated by objective technical standards (Tang et al., 2015). However, the service quality cannot be assessed by single standards alone. Consumers play a crucial role in quality assessment and, thus, are seen as best judges. But their evaluation tends to be strongly subjective (Li, 2012b). The intangible service quality management system is built through the way consumers receive service and their experience in the process of service provision and consumption (Wei, 2006). Thus, the function of quality in the service process cannot be measured by a unified standard, but by the consumption experience of consumers. Service enterprises need to measure service quality according to consumer needs. This is also what the new competitiveness of service enterprises is all about.

The concept of service quality and quality theory points out that quality should be assessed by whether service has met the needs of consumers, rather than whether it is consistent with the standards of enterprises. This helps people understand what quality really is, enable enterprises to focus on consumer needs, and meanwhile enrich the consumer-oriented management approach and theory. The quality of service is not only the research object of the traditional service industry but also that of the old-age service industry.

3.1.2 Service quality scale

3.1.2.1 Overview of service quality scale

SERVQUAL is a classical scale commonly used in service quality research. Parasuraman et al. (1988) proposed a new service quality evaluation system in the service industry based on Total Quality Management (TQM) theory. The theoretical basis of SERVQUAL is the "service quality gap model", that is, service quality is measured by the gap between the perceived actual service and expected service (also known as the "expectation-perception" model). The expectation of consumers is a prerequisite for the development of quality services and the key to providing quality services is to exceed consumers' expectations. The SERVQUAL model consists of two parts: the expectation of the consumer to the service and the true feeling about the service. The original version of SERVQUAL included ten service quality dimensions, but is later shortened to five: Reliability (RABE) – ability to fulfill promised services reliably and accurately; Assurance (ASSE) – service staff's knowledge and etiquette, and their ability to build trust and confidence; Tangibility (TANE) – Physical facilities, equipment, and performance of service staff; Empathy, (EMTE) – provide individualized services; Responsiveness (RESE) – willingness to help consumers and provide

timely service. The simplified scale has a total of 22 indicators on a 7-point Likert scale (Parasuraman et al., 1988).

SERVQUAL scale is widely used in medical institutions, tourism, aviation, banking, hotels, network services, library services, and other service industries. For example, since SERVQUAL was first used in the Canadian tourism industry since 1991, it has been widely used in many countries and regions, such as the United States and Britain (Xu, 2006).

In the development of SERVQUAL, scholars have developed different service quality evaluation models according to the specific characteristics of different service industries, such as HOLSAT (Donthu & Yoo, 1998) and HISTOQUAL (Frochot & Hughes, 2000). Based on these models, they not only confirm the importance of SERVQUAL scale, but also sort its five dimensions in the order of importance from highest to lowest, say, reliability, assurance, responsiveness, tangibility, and empathy (Parasuraman, 1985). Parasuraman (1994) used the HOLSAT model to evaluate the tourist satisfaction visiting Cuban tourist attractions and exposed the potential problems of tourism services. HISTOQUAL provides a service quality evaluation method for cultural heritage tourism services. This method can be used not only to compare different services under the same management mode but also to track the changing trend of service quality periodically (Saleh & Ryan, 1991). The ECOSERV model (Bign é et al., 2003) used to study the service quality of natural sightseeing services defines the service quality of ecological tourism from six aspects: eco-tangibility, assurance, reliability, responsiveness, empathy and tangibility, and points out the eco-tourists are well disposed toward tourism service providers who are courteous, knowledgeable, trustworthy, and environmentally friendly.

Due to the differences in cultures, regional policies and other factors, SERVQUAL needs to be modified before it is applied in a specific country or region. SERVQUAL was developed by western scholars and, therefore, all its concepts, expressions, and choice of words are often not fully understood by respondents from other cultural backgrounds (Donthu & Yoo, 1998). Zhao et al. (2002) used SERVQUAL to evaluate the service quality of the retail industry in mainland China and tested the reliability and validity of the scale. The results showed that the reliability coefficients of all dimensions were below 0.70. Even in the exploratory study, the reliability coefficients of three dimensions (responsiveness, assurance, empathy) were less than 0.60, indicating that Chinese respondents had difficulty understanding the basic concepts of the original dimensions developed by western scholars. Zhao et al. (2002) argues that the reason for this is the use of words in the scale because the words such as “empathy” and

"responsiveness" are seldom used in any style of Chinese writing. As far as validity is concerned, different dimensions are overlapping, for example, some items in dimension "Empathy" are similar with items in dimension "responsiveness", which indicates that in some cases these two dimensions are interchangeable. This finding is consistent with Babakus and Boller (1992)'s conclusion that also found that terms with similar meaning in different dimensions always confuse respondents. This means that Chinese respondents cannot understand these concepts well and are unable to distinguish between them. On this basis, most scholars have to adjust the applicability of SERVQUAL dimensions when applied to the Chinese context. Zhou et al. (2002) modified the SERVQUAL and applied a revised version to the banks in Zhejiang Province. In the exploratory factor analysis, the factor loading analysis results indicate that the original five dimensions should be merged into three dimensions, namely reliability, assurance, and empathy. That is to say, the surveyed bank consumers in Zhejiang Province can only understand and accept these three evaluation dimensions in the assessment of bank services quality. Since SERVQUAL still stay relevant in exploring service quality from a consumer perspective, Zhou and Zhao suggest that the three dimensions of SERVQUAL can be widely applied to the Chinese banking industry after they are further adjusted and optimized.

Besides China, problems arose when SERVQUAL is directly applied to other countries with very different cultural and social backgrounds from Western countries. Bulgaria is a country with a 45-year history of the socialist system and is currently transforming from a planned economy to a market economy. Wu (2009) conducted a pilot project on 100 Bulgarian consumers and found 16 of the 22 indicators in the SERVQUAL scale cannot be understood by the respondents.

Apart from cultural differences, the general applicability of SERVQUAL in different service industries is also questioned, and the industry-specific factors demand adjustments to the SERVQUAL (Donthu & Yoo, 1998). Augustyn & Seakhoa-King (2004) used SERVQUAL to study the quality of nursing home service and found that the elderly had difficulty in understanding the meanings of five dimensions of SERVQUAL because their comprehensive ability is lower than ordinary people. It is noteworthy that this study was carried out among elder consumers in Western countries, but there were still some difficulties in understanding them. Therefore, when the researchers decide to apply SERVQUAL to Chinese nursing homes, it is necessary to revise the five-dimensional SERVQUAL according to China's context to make the results more reliable.

3.1.2.2 Elderly care service quality scale

There are two types of old-age care service institutions according to the kinds of services they provide. One refers to the traditional medical care institutions, such as the old-age medical care institutions and the old-age care rehabilitation center. The other refers to the health care institutions, such as nursing homes. On this basis, the relevant literature on the service quality scales of the two types of old-age care service institutions is reviewed and summarized.

Since the time SERVQUAL scale was developed, many scholars have applied it to traditional old-age medical institutions, such as old-age medical care institutions and old-age rehabilitation centers. Anderson and Fornell (2000) used the SERVQUAL scale to survey 252 elderly consumers from nursing homes in Singapore. The results showed that there was a big gap between respondents' expectations and actual experience regarding the responsiveness of service staff and standardization of service facilities. Gonzalez and Padin (2005) used the SERVQUAL scale to measure the perceived quality of service in nursing homes sponsored by local universities in southern Spain and confirmed the validity of the scale, especially tangibility and empathy. The variance analysis found that only gender and age had an impact on the perceived quality of service. Zarei and Arab (2012) adjusted the SERVQUAL scale regarding differences in cultures and customs and applied the revised version to survey the perceived service quality of eight private nursing homes in Iran. Zarei and Arab found that the adjusted SERVQUAL scale performed well in evaluating service quality. The study also found that respondents had higher expectations and perceptions about tangible service facilities than intangible service interaction. Respondents' gender, education level, and past service experience in the same nursing homes have a significant impact on the evaluation of current service quality. Besides, the convenience of pension insurance services, the responsible medical department and health conditions of the respondents also have an impact on the services they consume. Suki and Kohers (2001) used three dimensions in SERVQUAL including tangibility, empathy, and trust that are suitable to evaluate the service quality of private nursing homes in Malaysia. The survey results showed that the service quality of private nursing homes in Malaysia is far from satisfactory. Like China, Malaysia is also an Asian country with many Chinese people and some shared culture with China. Therefore, the study of Duffy et al. (2001) provides a high reference for this study.

Chinese scholars also used SERVQUAL scale to study the service quality of traditional nursing homes. Shao (2001) designed an evaluation scale including seven dimensions, namely

greening environment, geographical location, treatment process, service attitude, management efficiency, medical ethics, elderly care costs and service facilities, and conducted a survey on the service quality among elderly consumers of Renji Medical and Nursing Institutions for the Aged in Shanghai. The results show that most of the respondents pay more attention to service attitude and equipment. The hospitalized and outpatient elderly consumers pay different attention to service attitudes and service facilities, with the former caring most about the service facilities and the latter paying more attention to the service attitudes of nurses and doctors. Zhao et al. (2002) added acceptability as the sixth dimension on the basis of the five dimensions of the SERVQUAL scale and used the improved SERVQUAL scale to survey the clients of an old-age nursing institution in Beijing. It was found that their service quality was unsatisfactory and the services regarding tangibility, empathy, and acceptability need to be improved. Sun (2005) conducted an empirical study on the service quality of rehabilitation institutions in Hefei using a scale including five dimensions: personal image, service attitude, service efficiency, information provision, and service skills, and analyzed the quality of service in the process of diagnosis, fee-charging and medicine prescription for the elderly. The results showed that the service quality of the rehabilitation institutions in Hefei is not high, especially personnel image and empathic service. Some suggestions for improvement are put forward. Mowen and Minor (2003) used a fuzzy evaluation method to study the service quality of military nursing institutions from the aspects of physical facilities, service process, service attitude, nursing quality, and nursing cost. The study found that the key factors affecting the service quality of the old-age medical institutions include physical facilities and service attitude. Based on these two main factors, they put forward corresponding suggestions to improve service quality. Xiao (2007) surveyed four old-age medical institutions in Wuhan and Shenzhen and established an evaluation model for the quality of elder care. The model consists of seven dimensions: tangibility, trust, humanization, reliability, effectiveness, responsiveness, and economic efficiency.

The SERVQUAL scale is mostly used to evaluate the service quality of old-age healthcare institutions. Ann and Kilbourne (2004) used the SERVQUAL scale to compare the quality of nursing homes in the United States and the United Kingdom. Boris and Korda (1999) conducted a longitudinal study on the service quality of rural nursing homes based on the SERVQUAL scale and found that the service quality was lower than that in 1991. Kilbourne (2004) used the SERVQUAL scale to survey respondents from the medical field including hospital managers, doctors, nurses, clients, medical students, and nursing students.

The research results effectively reflect the existing problems in the service quality system of nursing homes.

Many Chinese scholars have also applied the scale to the assessment of service quality in nursing homes. Wei (2009) assessed the perceived service quality of 521 elderly patients in six nursing homes in Luoyang City, Henan Province using the SERVQUAL scale. The results showed that the SERVQUAL scale needs to be adjusted before it can be used for nursing homes in China. The study combined the evaluation dimensions. After repeatedly soliciting advice from managers of nursing homes, Wei shortened the SERVQUAL scale to two dimensions, namely tangibility, and empathy, but added other dimensions including respondents' cultural and educational background, age and gender. The revised SERVQUAL scale is more suitable for the evaluation of service quality in nursing homes. Liu and Ye (2013) used SERVQUAL scale to evaluate the perceived service quality of public nursing homes in Southwestern Guizhou, China. The survey results showed that some dimensions of the SERVQUAL scale, especially responsiveness, reliability, and assurance, are not suitable for the region including many ethnic minorities, such as Miao and Buyi. The special cultural factors make the SERVQUAL scale inapplicable. Gu (2014) used the SERVQUAL scale to evaluate the service quality of a nursing home in Linyi City, Shandong Province and found that the SERVQUAL scale needs to be adjusted before it can be applied. Elderly people in nursing homes care most about advanced nursing facilities and emotional exchanges with doctor and nurses but pay less attention to other dimensions. Gu argues that this is because the applicability of the SERVQUAL scale is affected by cultural factors. On this basis, he merged multiple dimensions into two, namely, physical facilities and empathic service. The modified SERVQUAL scale performs well and shows good validity.

It can be seen from the Chinese literature that most scholars have modified the SERVQUAL scale to a varying degree before the SERVQUAL scale is used to evaluate the service quality of two types of old-age care institutions. Especially the two dimensions including tangible service facilities and empathic service are substantially adjusted.

3.2 Consumer satisfaction

3.2.1 Overview of consumer satisfaction

With the advent of the era of knowledge economy, enterprises began to shift their focus from "capital investment" to "investment in human" and emphasize the consumer-oriented

soft indicators such as "the most valuable consumers" (Pan, 2016). Therefore, stress has been laid not only on the output efficiency of economic resources but also the output quality. Consumer satisfaction is a suitable indicator to measure output quality from the perspective of consumers. As a useful supplement for traditional indicators of the national economy such as GDP, consumer satisfaction has become a standardized indicator used to measure national economic quality (Liang, 2007). Consumer satisfaction directly affects people's satisfaction with life. Therefore, the study of satisfaction theory can provide guidance for the practice of consumer satisfaction and in turn, the practical experience of consumer satisfaction can enrich satisfaction theory. Since the 1970s, the study of consumer satisfaction began to emerge in many developed countries, the satisfaction theoretical model framework has been gradually established (Sun, 2014).

Consumer satisfaction refers to the degree of satisfaction provided by the goods or services of a company, which is the manifestation of the psychological feeling of consumers. Cardozo (1965) introduced the concept of "consumer satisfaction" into the business field. Early research on consumer satisfaction mainly focused on products, while Cardozo (1965) believed that improving consumer satisfaction could lead to consumers' further purchases in the future and brand loyalty. Satisfaction survey as a service quality evaluation method initially focuses only on the service process, which examines whether service staff has complied with the service standards, also known as "survey of the fulfillment of promised services". However, for modern service organizations, consumer satisfaction is not an absolute concept, but a relative one, which reflects the extent to which a consumer is satisfied with the services after comparing the perceived service quality with expected service quality (Wang, 2013). Consumer satisfaction refers to the degree of satisfaction after the comparison of expected service quality and perceived service performance (Pan, 2016). If the perceived product or service quality satisfies or exceeds consumer expectations, the consumer will feel satisfied. Satisfaction degree will affect consumers' purchase intentions and purchasing decisions, and even how enterprises formulate their competitive strategies (Wang, 2007). Consumer satisfaction should be measured not only by whether the services have been successfully provided but also by whether the consumers' expectations have been met. With the expectations of consumers widely varying, consumer satisfaction is defined as a variable rather than a constant.

Consumer satisfaction is influenced by many factors, among which there are three main factors: customer expectation, quality perception, and value perception. Consumer

expectations include customers' consumption experience and expectations of service providers to improve their quality in the future, that is, consumers' use of a product or interaction with a service, or information obtained through media, such as advertising, salesmen and other consumers' ratings (Liang, 2007). Consumer expectations have a direct impact on consumer satisfaction (Zhang, 2013). Quality perception refers to consumers' opinions about the quality of products and services based on consumers' recent consumption experience. Quality perception is affected by consumer expectations and has a direct positive impact on consumer satisfaction (Liu and Ye, 2013). Value perception refers to whether the consumers think the perceived product/service quality match with the prices they are paying. The introduction of value perception also increases the comparability of consumer satisfaction indicators in different enterprises and industries (Chen, 2010).

At present, all service firms are competing on service quality. Because of different attributes of service quality in different environments and based on a study of the influencing factors of service quality, the service providers can create a pleasant and comfortable service atmosphere for consumers by improving service environment and facilities. Although it cannot significantly improve the satisfaction of existing consumers, it might help attract potential consumers. Meanwhile, providing high value-added service products and reducing consumption costs for potential consumers are among the effective ways to develop them into real consumers (Ding and Xu, 2007). Additionally, in the face of fierce competition, it is difficult for enterprises to gain absolute competitive advantages by improving service quality alone. Therefore, enterprises should focus efforts on effective remedial measures in the event of occurrence of failures (Pan, 2016). Since the services will never be perfect and service failure can hardly be avoided, it is necessary for service firms to take remedial measures to restore consumers' confidence and improve their brand loyalty. Meanwhile, if the enterprise can provide consumers with products or services they really need at reasonable prices, consumer satisfaction and loyalty are expected to be improved accordingly (Wang, 2007).

3.2.2 Consumer satisfaction concerning elderly care services

In order to improve the satisfaction of elderly consumers, it is necessary for nursing homes to provide thoughtful, attentive and considerate nursing service for them and it is also the most fundamental criterion for evaluating the service skills of a nursing home. Nevertheless, some consumer satisfaction scales originally developed for hospital medical care service are not applicable to measure consumer satisfaction in nursing homes (Hinshaw

& Atwood, 1982). Liu (2006) found that one-third of the scale items are designed for doctors. Because elder consumers in nursing homes spend much time interacting with nursing staff rather than doctors, the applicability of the scale is questioned. The research on consumer satisfaction regarding old-age care services is widely reviewed in this study.

3.2.2.1 Connotations of consumer satisfaction regarding elder care services

Consumer satisfaction is a process of evaluation, reflecting the psychological state of consumers. As far as the elderly consumers are concerned, the consumer satisfaction usually refers to the extent to which the elder consumers' needs and wishes have been met, which is an important indicator to measure the life quality and mental health level of the elderly in nursing homes (Pan, 2016). Because the elder consumers will spend the rest of their lives in nursing homes, they will undoubtedly pay special attention to everything in the "home". Therefore the consumer satisfaction of elder consumers should be measured from almost every aspect of the daily life, including the living environment, service facilities, furniture and furnishings in the room, hygienic conditions, various activities and interest groups, outings organized by the nursing homes (Wang, 2013). After being admitted to nursing homes, the elderly consumers will make a comparison of the anticipated service quality and the perceived service performance. The overall satisfaction of elderly consumers is the result of the combined effect of the degree of satisfaction with various services and the perceived value offered. If the elderly consumers get what they pay for, that is, get professional care in everyday life and improve their physical and mental health, then they will feel satisfied and rate the overall services of the nursing home highly; otherwise, elderly consumers think they have a negative experience with the nursing home's services (Yu, 2016). The nursing homes should step up efforts to improve the hardware and software conditions to guarantee high-quality services to the satisfaction of elder consumers.

3.2.2.2 Affecting factors of consumer satisfaction

In choosing a nursing home, the elderly or their families care more about whether the hardware facilities of the nursing homes can meet the daily needs of the elderly (Wang, 2013). Especially, some disabled and semi-disabled elderly as well as elderly patients need to be taken care carefully. Currently, most of the private nursing homes are not capable of providing quality service due to insufficient service facilities and other factors. Lack of hardware facilities is commonly seen in China's nursing homes. In terms of hardware facilities, most nursing homes are renovated from abandoned factory buildings and residential buildings in cities and towns, which make them difficult to guarantee comfortable accommodation (Cui,

2002). The narrow space and inadequate activity area of some nursing homes make it impossible for the elderly consumer to take physical exercise. Some nursing institutions focus only on the basic needs of elderly consumers, say, clothing, food, and housing, but do not provide the basic fitness and rehabilitation equipment. Most old-age institutions do not have outdoor activities and green space, which makes it impossible for elderly consumers to take outdoor activities and enjoy the green landscape, let alone their cultural and entertainment needs. Without fitness equipment, recreational facilities and outdoor activities space, most elderly consumers can only kill time by playing cards, playing chess, and watching TV. The lack of hardware facilities make it impossible for nursing facilities to provide diversified service items, for example, blood pressure monitor and rehabilitation equipment are hardware facilities necessary for blood pressure test and rehabilitation activities, respectively. In addition to the lack of traditional hardware service facilities, most of the nursing homes have insufficient medical facilities. Most elderly people have high expectations of accommodation, meals, surrounding environment, fitness facilities, cultural, and recreational activities. However, most nursing institutions only provide basic daily care services such as food, drink, and sleep. Without high-end life and nursing service facilities, the psychological, spiritual and cultural needs of the elderly consumers cannot be met. This can explain why elderly consumers generally have low satisfaction with medical services and recreational services in nursing institutions (Gao, 2013).

The nursing staff is the front-line service workers, whose service attitude and humanistic care directly affect the level of satisfaction of elder consumers. Most of the staff in nursing homes is recruited from the labor market. Most of them are new migrant workers with extremely low educational level and worse some even have never worked in the nursing industry before (Zhang, 2014). Therefore, from the perspective of professional level, without systematic and scientific knowledge, most nursing staff can only provide basic level nursing services such as daily life care and cleaning but is incapable of high-level nursing care such as psychological counseling, medical care, and urgent or personalized needs of the elderly (Liu and Ye, 2013). The overall quality of nursing personnel directly affects the service quality of nursing institutions. They are an important force in the operation of nursing institutions. If the nursing homes lack professional services, the needs and interests of the elderly consumers are easily ignored and the service quality is difficult to guarantee (Wang, 2013). The common problems facing most nursing homes are a shortage of well-trained, high-quality, and stable service staff. Low wages and high workload lead to a high turnover rate and staying the

industry in short, time makes it difficult to accumulate enough experience. The high turnover rate of nursing staff has a negative impact on the psychological feelings of the elderly. It takes a long time for people to know, be acquainted and built trust among each other. With the frequent change of nursing staff, the elderly consumers have to repeat the process many times, which will negatively affect the mental health of elderly consumers and cause disputes and complaints induced by unstable service quality and low satisfaction (Hong, 2006). In addition, the high cost of training results in insufficient training provided by many nursing homes. However, the competency and professional level of nursing staff directly determine the quality of service and elderly satisfaction (Huang, 2013).

The ability of the elderly to take care of themselves varies greatly and, therefore, the nursing care time that each elderly consumer needs, the specific requirements for the quality and expertise of caregivers are different. This requires that nursing homes should be equipped with a sufficient number of qualified nursing staff. However, at present, most nursing homes only have ordinary nursing staff but nursing professionals such as nutritionists and rehabilitation physiotherapists are rarely seen. It can be seen that the allocation of human resources in nursing homes is seriously unbalanced (Wang & Zhang, 2013). Although free services are occasionally provided by volunteers in some nursing homes, their services are short term and unstable. Meanwhile, owing to the low salary, low job identification, and system barriers, it is difficult to recruit professional nursing talents and all kinds of professionals are unwilling to engage in the old-age nursing services, which contributes mostly to the poor professional service skills of nursing homes (Luo, 2017). Therefore, how to ensure the systematic and professional training for nursing staff, stable service staff team, and quality service will become the key to determine the development level of nursing homes.

From family life to living in nursing home, the elderly not only suffer from the pains of leaving their home and family, but also have to struggle to cope with the change of their value concept, lifestyle, and living environment. This is undoubtedly a major psychological shock in their later years of life (Hu and Li, 2013). However, the service items of most nursing homes are undiversified and only the most basic nursing services such as daily life care, food as well as simple cultural and entertainment activities, such as chat, playing cards and watching TV, are provided. With everything going as planned, the well-ordered life in the nursing room is boring and tedious, which reduces the elderly consumers' opportunities for social activities and the right to freedom of choice. Besides, most elderly will spend the rest of their lives in nursing rooms, the successive death of roommates will undoubtedly cause

psychological stimulus for the living elderly (Zhang and Bao, 2008). Staying far away from society and family, the elderly in nursing homes are difficult to feel the colorfulness of social life and the warmth of family. Therefore, they are easy to suffer from depression and other psychological diseases. For this reason, it is necessary to pay more attention to the mental health of the elderly in order to improve their satisfaction. However, at present, most nursing homes focus more on the physical health of the elderly such as the regular test of blood pressure and blood sugar. Unfortunately, the mental health of the elderly is massively ignored (Cui, 2001). When people get older, they often develop a sense of insecurity, loneliness, self-abasement, and other psychological diseases. If there is no timely psychological counseling to relieve their emotions, the elderly may further suffer depression, and other mental diseases (Cui & Qin, 2001). When the elderly feel depressed, they can only regulate their mood themselves or pour out to their family and friends. Many elderly people hope that nursing staff can spend more time chatting with them, but in fact, due to the heavy work of nursing staff, they rarely have time to talk with the elderly (Lyu & Ni, 2014). Therefore, it is necessary to provide professional psychological counseling service for the elderly and it is also an important measure to improve the satisfaction of the elderly.

The social and family emotional support is an important factor affecting the satisfaction of elder consumers in nursing homes. Apart from the daily care and body cleaning services, the elderly expect more care and interaction from family members, inmates, and nursing staff (Xie, 2010). This emotional support from family members, old friends, and new friends tremendously helps the elderly to get through the tough days before adapting to the life in nursing homes and take a positive and optimistic attitude toward the future life.

It is believed that Chinese elderly people with filial children tend to enjoy higher satisfaction with life. Elder consumers with more care and frequent visits from their attentive children and frequent inquiring from nursing staffs always have a broad smile on their faces. With such caring and supportive children and nursing staffs, they even take a more tolerant attitude towards the insufficient facilities such as cramped entertainment space (Wu, 2016b).

Barring family and nursing staff’s emotional support, the mutual support between elder consumers in nursing homes is also an important factor affecting satisfaction. When they encounter problems or feel bored in daily life, many elderly people tend to chat with friends to seek comfort. Most elder consumers can have a peaceful mind and maintain a good relationship with other roommates. Nevertheless, there are exceptions. The personalities and declining body functions such as hearing loss may contribute to the poor relationships

between some elders with other roommates (Ding and Xu, 2007). The relationship between elderly consumers is like the relationship between family members. Family harmony determines the happiness of family members largely. If the elder consumers can love and help each other as their own family members, they will find a home in the nursing home and satisfaction will naturally improve. Otherwise, it is easy to cause loneliness and pessimism among the elderly (Wu, 2016a). Besides material needs, the elderly also have spiritual needs for family love or friends and social support. Currently, the nursing staff in many high-end old-age institutions has ignored the spiritual needs of elder consumers, thus with rare emotional interaction with them, which worsens their relationship. Hu and Li (2013) found that, although many nursing homes in China are beginning to pay attention to the quality of the material life of the elderly, they neglected their spiritual needs and emotional care. In order to facilitate management, some nursing homes even adopt closed-off management by forbidding the elderly going out and meanwhile allowing no visits by their family and friends, which cuts off the ties between the elderly and the outside world and seriously harms the mental and physical health of the elderly (Cui & Qi, 2001). The spiritual needs, individual characteristics, and actual needs of the elderly have been broadly neglected (Hong, 2006). Under these circumstances, the elderly can only kill time by chatting with roommates or watching TV. Without necessary emotional care and improvement of life quality, the elderly' satisfaction and well-being will not be improved.

Apart from the above affecting factors, strong financial support also has a positive impact on the elderly' satisfaction and the improvement of the quality of life. In China, children are largely responsible for the living expenses of their old parents. Barring the high net worth elderly group, 57.58% of the elderly with ordinary income are supported by their children, and only 1.01% receives social aid (Yuan, 2014). With the number of family members on the decline due to one-child policy in the past and the emergence of "moonlight clan" and "overdraft clan", the stability of financial support for the spending of the elderly in nursing homes is threatened. Interest and hobbies are also important factors affecting the happiness of the elderly, which can not only enrich the spiritual life of the elderly but also promote communication among the elderly and enhance social ties and support (Chen, 2010). Therefore, it is necessary for the old-age care institutions to carry out cultural and entertainment activities such as contest and exchanges to promote mutual communication among the elderly among the elderly and effectively prevent the occurrence of depression and other adverse emotions.

3.2.2.3 Current situation of consumer satisfaction with old-age care services

Satisfaction with elder care services in China is overall improving. The improvement of satisfaction of elder consumers in nursing homes is reflected on the following several aspects: First, with the improvement of living standards, currently the elderly can enjoy the more comfortable treatment and quality services than before and life quality has also been improved. Second, the conditions of nursing homes have been significantly improved. In the past, there were only a small number of nursing homes with poor conditions. Most of their occupiers are old people with no income, no ability to work, and no family. With the socioeconomic development, the number of nursing homes has increased enormously and the conditions have been substantially improved. For example, two elders currently share a room of more than 10 square meters, with separate kitchens and bathrooms, air conditioning, television, refrigerators, and other electrical appliances. The nursing staff in nursing homes also provides the elderly with food, clothing, shelter, and transportation services. Third, the service quality has been improved. The recreational activities and number of fitness facilities have been gradually increased. Many interest groups have been set up in social circles among the elderly. Nursing homes also regularly organize visits and tours for the elderly. In general, the rich and colorful life has distracted the elderly from the loneliness (Cui & Qi, 2001).

The significant consumer satisfaction gap between private and public nursing homes still exists. Wu (2016c) argue there is a still big gap between public and private nursing homes in terms of food quality, accommodation, old-age care services, and recreational activities. Public nursing homes generally occupy a larger area and receive strong financial support from the Government, while private nursing homes have rare support from the Government. Public nursing homes have extensive contacts with all sectors and, therefore, many social theatrical performances are usually held in public nursing homes; private nursing homes seem pallid by comparison.

The private general nursing homes and private high-end nursing homes reported different consumer satisfaction. In 2013, 93.2% of the elderly in private general nursing homes reported above the average satisfaction, higher than the satisfaction of 83.24% of the elderly with their daily life in 1999, which reflects elder consumer are satisfied with the life in private general nursing homes (Pan & Wu, 2016). The high satisfaction can be attributed to the good mental status of the elderly. On the one hand, because the elderly were born before the founding of New China (PRC) or the early days of its founding, compared with the tough life in the past, they feel more satisfied with current living conditions; on the other hand, the

elderly in the nursing home no longer care about mundane affairs outside; thus, they always maintain a leisurely mood. Han and Sun (2014) found that the satisfaction of elder consumers in private high-end nursing homes in 2013 was only 56%, much lower than that of elder consumers in China's high-end nursing homes in 1999 (63.21%), which suggests that the satisfaction expectations of private high-end elder consumers are on the rise.

3.3 Market segmentation

3.3.1 Definition of market segmentation

Market segmentation is the activity of dividing a large heterogeneous market into homogeneous sub-groups of consumers (known as segments) based on different wants, demands of consumers and one or several segments will be selected for special attention (i.e. become target markets) (Li, 1985). Since few companies are big enough to supply the needs of an entire market, this concept attempts to resolve the conflict between specific consumer needs and limited company resources and allow firms to design a marketing mix that precisely matches the expectations of consumers in the targeted segment (Kotler & Keller, 2006). In terms of product marketing, the market segmentation is based on economic pricing theory, which shows that when the price difference of market segmentation is set, those segments selected are likely to be the most profitable (Zhang, 2004a). In terms of consumer demands, Stafford (1996) pointed out that demographic segmentation remains one of the most popular bases to segment market. Dividing or segmenting markets based on the shared characteristics of consumers can better meet consumer's needs. Market segmentation fully respects the objective facts that the needs of consumers are complex, diversified and multi-layered, thus abandoning the wrong practice of imposing uniform products on all kinds of consumers, which has important practical guiding significance for the marketing activities of enterprises (Wang, 2004).

Market segmentation can help enterprises to identify and make full use of new market opportunities quickly and adopt a flexible market strategy to scientifically select targeted markets. By effectively using multiple market strategies such as brand products, pricing, marketing, sale channels, the enterprises can enhance competitiveness, avoid waste of enterprise resources and maximize economic benefits. To be sure, market segmentation has become a trending market strategy that is expanding to all markets in modern and future society (Li, 1985).

3.3.2 Segmentation of elder care service market

3.3.2.1 Significance of market segmentation

It is of great strategic significance to subdivide the consumers into the old-age care market. Through market segmentation, we can analyze the needs of consumers in each market segment, and analyze the extent of demands for various old-age care and nursing care services (Gu, 2014). Market segmentation can help enterprises identify the characteristics of various markets and further target specific segment with targeted management strategies and resources advantages in order to capture market share (Yu, 2010). Market segmentation is also an important strategy for elderly care institutions to properly and accurately determine the target market.

3.3.2.2 Prerequisites of market segmentation

The existing literature studies the prerequisites of market segmentation from four criteria: measurability, accessibility, relative stability, and profitability.

Measurability means that nursing institutions must be able to obtain accurate information about consumers and quantitatively analyze the input and output of the market segments in order to conduct a feasibility study and identify high yield segments (Zhang, 2004b).

Accessibility refers to the extent to which nursing institutions can reach the targeted segments. The purpose of market segmentation is to help nursing institutions identify the segments that they can target according to existing resources (Pan, 2016). Therefore, in market segmentation, it is necessary for nursing homes to fully evaluate the existing resources conditions such as workforce, material resources, financial resources and service equipment, and formulate effective marketing strategies so that they can enter the target market and operate effectively.

Relative stability means that nursing institutions can continue to operate in the targeted market segment for a relatively long period instead of switching to another segment. Thus, nursing institutions can formulate long-term business strategies for the consumers in this segment (Zhang, 2004c). However, the market is constantly changing; thus, stability is temporary. The old-age care institutions should adjust their marketing strategies according to the changing situation in time to adapt to the ever-changing market.

Profitability means nursing institutions can gain expected profits from target segment, which requires the target market should have a notable size, actual and potential consumer

needs, and can hold many rivals (Wu, 2016c). For the same segment, if the entry of a new competitor leads to the crowding out of the incumbent, then such market lacks competitiveness and makes it difficult for the first mover to make profits and achieve long-term development. Besides, the potential consumers in the target market should have a certain purchasing power. No matter how large a market is, the old-age care institutions can make no profits if the elder consumers only have demand for elder care services but no spending power (Zhang et al., 2011b). The target market should guarantee to bring short-term and long-term profits to the elder care institutions so that they can achieve sustainable development.

3.3.2.3 Bases of market segmentation

Kotler and Keller (2006) argued market segmentation is the activity of dividing up a broad market into sub-groups of consumers (known as segments) based on some type of shared consumption needs and purchase patterns. Consumers in different market segments have different consumption needs and wants. The base for market segmentation is essentially a process that minimizes differences between consumers of a segment.

Because it is impossible for a single nursing institution to supply the needs of the entire old-age care market, the nursing institution must break down the total demand into segments and choose those that it is best equipped to handle. The demand varies greatly from market to market and the difference in demand becomes the base for market segmentation of nursing homes (Dai, 2008). According to the marketing segmentation approach, the market can be segmented according to the following bases:

(1) Geographic segmentation

Geographical segmentation is the activity of dividing the consumer market according to different geographical criteria, which is an important approach for the segmentation of the elder care market (Xu, 2015). Geographical factors mainly include geographical region, climate, population density, urban scale, and town scale (Li, 1985). The old-age care market can be segmented according to administrative areas and geographical locations. Such segmentation approach is helpful to study the disease care spectrum in different areas (Chen, 2014). In the process of choosing the target market, the old-age nursing institutions must study the residential areas of the consumers carefully, and distribute their resources to the market, which has strong demands for elder care services. The health spectrum of consumers in different regions is different, thus forming different markets (Wang, 2012a). The geographic environment is relatively a static factor; thus, it is often used as a way of market

segmentation. Therefore, this factor is more stable and easy to analyze compared with other factors. However, there is often a great difference in consumer demand in the same area (Wei, 2008). Therefore, other factors need to be considered in market segmentation.

(2) Demographic segmentation

Because consumer needs often correlate strongly with demographic variables such as age, sex, educational level, marital status, and religious beliefs, demographic segmentation serves as an important approach of dividing the elder care market. The demand for old-age care services is determined by consumer desires, utilization of old-age care services and demographic variables. Demographic variables are easier to measure than other variables (Lu, 2008). In particular: i) Age segmentation: the demands for elder care services vary with age; ii) Gender segmentation: males and females differ in the incidence of some diseases because of their physiological differences, some diseases are more prevalent among males and some diseases are more prevalent among females (Xu, 2015). Therefore, when providing nursing services for the elderly in nursing homes, the physiological differences should also be taken into account; iii) Income segmentation: the elder care market is generally divided into high-end, middle-end, and low-end market according to incomes of elder consumers (Zhang, 2007). The elderly whose monthly income is less than 1,000 yuan belong to the low-end consumer group; the elderly whose monthly income is between 1,000 and 2,000 yuan belong to the middle-end consumer group; and the elderly whose monthly income is more than 2,000 yuan belong to the high-end consumer group (Zhang, 2010). The elderly with independent sources of income have a lot of autonomy in life. On the one hand, they will not add to the burden of their children and on the other hand, they can afford high-quality services, such as enjoying a single room and going out for dinner (Yuan, 2014). Old-age care services can generally be divided into basic care needs and special high-end old-age care services (Chen, 2014). Groups with low income tend to have low demand for high-end care services and be sensitive to the price of care services; by contrast, high-income groups tend to have a higher demand for high-end care services and can also afford them (Xu, 2015). Some surveys have found that the increase of economic income will significantly promote the utilization rate of nursing services for the elderly and increase the investment in old-age care service among high-income consumers (Dai, 2008); iv) Educational level segmentation: the education level can affect the value orientation of consumers (Lu, 2009). With the improvement of the knowledge and culture level of the elderly and the transformation of their ideas, the demands for professional care in nursing institutions will gradually increase. The elderly with high

educational level like reading books and newspapers to absorb useful information, such as health and psychological knowledge, which can effectively release their inner pressure caused by depression and distract them from loneliness, and thus feel happier (Yuan, 2014). The cultural level of the elderly can be classified according to their academic qualifications, which are a doctor, master, bachelor, junior college, senior high school, junior high school, and primary school (Lu, 2009).

An analysis of segmentation methods shows each differentiated approach has its pros and cons. Therefore, it is difficult to achieve the desired segmentation effect only by using a single base or variable. Only through combined use of multiple bases for segmenting consumer markets can the segmented market be differentiated, measurable, accessible, substantial, and actionable (Ma, 2007). The segmentation bases are not isolated but closely related to each other (Zhang, 2004c). Segmentation based on different bases leads to different market segments. The market of nursing institutions can be segmented according to one or more bases (Dai, 2008). The full knowledge of multi-bases of consumer market segmentation can give us a comprehensive and profound understanding of the consumer groups. Therefore, combined use of multi-bases will make the market segmentation of nursing institutions more scientific and systematic.

(3) Psychographics segmentation

Kotler and Keller (2006) pointed out that the psychological factors of consumers relate specifically to intrinsic characteristics of consumers, such as lifestyle and personalities. Lifestyle is an important factor affecting consumers' desires and needs. People with different lifestyles have different demands for goods. Any change in a consumer's lifestyles can engender new consumption needs.

Consumers with similar demographic profiles may have substantially different psychological characteristics, for example, the psychological characteristics of consumers of the same age may be totally different. Therefore, the mass market should be segmented based on not only consumers' demographic variables, but also on their psychological characteristics.

3.4 Research hypotheses and conceptual model

The perceived service quality and consumer satisfaction shared many similar variables and are defined in the same way, the relationship between them has been keen to discuss the topic in academic circles. Parasuraman et al. (1985) believe that perceived service quality is

the antecedent variable of consumer satisfaction, that is, the higher the service quality, the higher the consumer satisfaction.

Lei and Jolibert (2012) studies the difference between perceived service quality and consumer satisfaction. In a service context, perceived service quality is a prerequisite for consumer satisfaction. This result is of great significance to marketing researchers and nursing managers. Therefore, service quality is often regarded as a key measurement indicator in the assessment of consumer satisfaction (Lin, 2010). Therefore, hypothesis 1 is put forward:

H1: The perceived service quality of elder consumers in nursing homes explains their consumer's satisfaction.

Consumer satisfaction is used to measure whether the products and services have met or exceeded consumer's expectations. Donabedian (1981) argues that consumer satisfaction is an important indicator to measure service quality because it reflects whether the service provider has upheld the consumer-oriented principle and always puts the consumer needs first. Consumer satisfaction is often regarded as a key performance indicator in the service quality assessment (Lin, 2010). Thus, service quality and consumer satisfaction model has played an important role in traditional marketing theory. Consumer satisfaction and service quality have always been the two key variables heavily researched by scholars and service enterprises in marketing research. Anderson et al. (1997) found that consumer satisfaction directly reflects consumer's assessment of service quality.

Grönroos (1984) first proposed the concept of consumer perceived service quality according to the basic theory of cognitive psychology, whose consumer perceived service quality model and differential analysis method provide a basic theoretical framework for the theoretical and practical circles to study the quality of care service for the elderly. Different perceived service quality comes from different market segments with different needs (Yu, 2010). Therefore, through consumer market segmentation, service enterprises can provide differentiated goods and services according to different market segments to meet the needs of different groups of consumers. For this reason, this study puts forward the hypothesis 2:

H2: Consumer who belongs to different market segments show different levels of perceived service quality.

Consumers in a specific market segment include existing or potential consumers with common characteristics. The purpose of segmentation is to provide products and services that satisfy their needs. Their satisfaction can be seen as their assessment of products or services

provided by a service provider (Ansari & Jagpal, 2000). Market segmentation is the process of dividing mass markets into groups with similar needs and wants, which can meet the needs of different consumers for services or products, resulting in more repeated purchases and promote consumer satisfaction (Gao, 2015). In terms of the elder care market, the age gap between different elder consumers can be up to 20 years and, therefore, their consumer satisfaction vastly varies (Wu, 2016). Even elderly people of the same age will have different perceived service experience. In the same market segment, elderly people are heterogeneous in age, ethnicity, lifestyle, social experience, occupation and educational background. The diversity of consumption of the elderly is more complex than that of other groups (Xu, 2011). Affected by social experience, occupation and education level, the high-end elderly consumers have different lifestyles, consumption ideas, and preferences. High-end elderly consumers need to pay more for the elder care services that can meet their special needs (Sower et al., 2001).

Therefore, this study puts forward the hypothesis 3:

H3: Consumer from distinct market segments show different levels of consumer satisfaction.

Based on the above three hypotheses, the conceptual model of this study is constructed (see Figure 3-1).

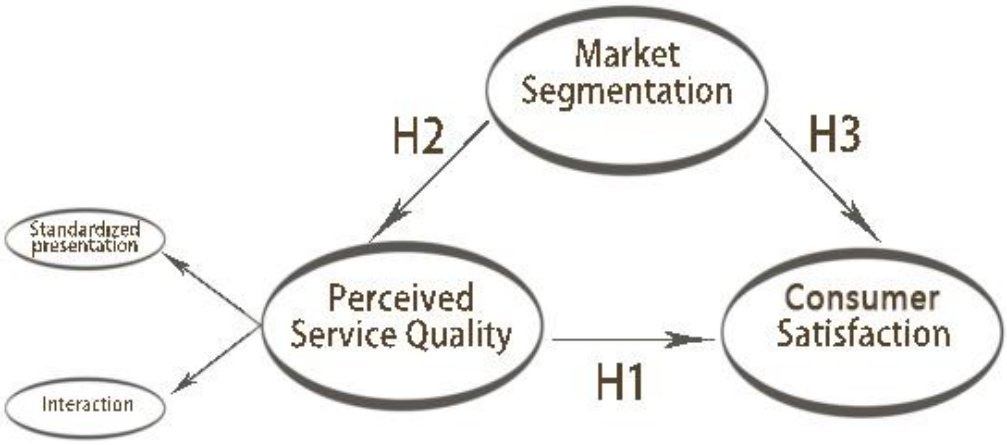

Figure 3-1 Conceptual model

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Chapter 4: Research Design and Methods

Based on the above conceptual model and research hypotheses, and with three K-brand nursing homes as the research objects, the study analyzes the present situation of the three nursing homes through questionnaire survey and verifies the conceptual model established in Chapter three.

4.1 Research objects

The three K-brand nursing homes surveyed in this study are respectively located in Qingta area, Shuangqiao area, and Yizhuang area in Beijing. The questionnaire survey is conducted among 355 patients in these three nursing homes.

The K-brand aged-care management company is owned by Sino-Ocean Land, a residential property developer. Founded in 1993, the Sino-Ocean Land was once subordinated to the Ministry of Communications of PRC and went public on the main board of the Hong Kong Stock Exchange (stock code: 03377) on September 28, 2007, after completing the joint-stock reform. It has become one of the ten mainland real estate companies listed in Hong Kong. In March 2008, the Sino-Ocean Land was selected as a constituent stock of the Hang Seng Hong Kong Composite Index and the Hang Seng China-Affiliated Corporations Index. The company is mainly engaged in the development of the middle and high-end residential property, high-end office building, retail property and service apartments, the sale of real estate and related business, landscape greening, property management, as well as hotel and club management. Based in Beijing, the Sino-Ocean Land has a cross-regional and diversified portfolio of real estate development and investment. With superior projects and services, the company has firmly established the brand of "Sino-Ocean Land". With the idea of conveying brand value through boosting elderly-care service industry, the real estate developer established the K-brand old-age care management company.

In 2013, the first K-brand nursing home (Beijing Yizhuang Nursing Home) was jointly established in Beijing by the Sino-Ocean Land and Emeritus Corporation of the United States, with Americans being responsible for the management and operation. On July 3, 2013, Yizhuang Nursing Home obtained the license for nursing service institution issued by Beijing

Civil Affairs Bureau (license number: 1100100001), thus becoming the first licensed nursing home in China only three days after the implementation of the law on the protection of the rights and interests of the elderly in China. It has played an exemplary role in the old-age care industry in Beijing and even in China. In 2014, the second K-brand nursing home of the Sino-Ocean Land (Beijing Shuangqiao Nursing Home) was established. In an attempt to build a service quality perception system according to consumer segmentation, the Shuangqiao Nursing Home can provide comprehensive nursing services for various types of elderly people, such as self-care, auxiliary nursing, and nursing care. In 2015, the third K-brand nursing home (Beijing Qingta Nursing Home) went into operation and a Chinese who had served as president of a high-end nursing home in Japan was appointed as its CEO.

The Qingta Nursing Home is located in the south of Lianyuqiao near the Fourth Ring Road of Beijing. Its target market is mainly oriented towards the retired elderly of the Chinese central government departments in the western part of Beijing. Shuangqiao Nursing Home is located in Kangcheng Garden Villa area outside Beijing's Fifth Ring Road. Its market mainly targets the elderly consumers in the Chaoyang District of Beijing and Beijing's sub-center (Tongzhou District and Shunyi District) and further expands to Yanjiao Economic Development Zone of Hebei Province. The opening of the nursing home marked the improvement of the nursing service for the aged in the eastern part of Beijing and Tianjin. Yizhuang Nursing Home is located in the east of Dayangfang Bridge in the southeastern part of Beijing's Fifth Ring Road. It targets the elderly people in Daxing District and Fengtai District and further expands to Gu'an Development Zone of Langfang City, Hebei Province. The opening of the nursing home marked the improvement of the old-age care service in the southern part of Beijing and Tianjin.

The three nursing homes are equipped with rehabilitation centers, nurses' stations, clinics, beauty salons, banquet halls, multi-functional halls, gardens, and parking lots. The number of bed for the Qingta Nursing Home, Shuangqiao Nursing Home, and Yizhuang Nursing Home are 107, 134, 100 beds, respectively.

4.2 Research variables and measurement

According to the conceptual model depicted in Figure 3-1, the key variables observed in this study include perceived service quality, consumer satisfaction, and market segmentation. Next subsections introduce their definitions, measurement tools, and measurement methods.

4.2.1 Perceived service quality

Based on Fang's concept, the consumer perceived service quality in this study is not only affected by the quality of old-age medical care service, but also by other non-medical care service factors (Fang, 2007). This study focuses on the perceived service quality of old-age non-medical care service.

With regard to the measurement of consumer perceived service quality, this study adjusted the widely-used SERVQUAL scale on the basis of literature review and field investigation of three K-brand nursing homes. The service quality scale in this study consists of two subdimensions: standardized presentation and interaction with 11 indicators under them.

In order to correctly adjust the SERVQUAL scale, a field survey on three K-brand nursing homes is conducted. The field observation is detailed in Table 4-1.

Table 4-1 Field observation of three K-brand nursing homes

Service items	Products and services
VI Visual System	Logo, posters, medical equipment, outdoor light box, official documents, periodicals, guidance facilities
Official website	Service reservation, mobile terminal, product introduction, check-in procedures, service requirements, consumer manager online service, nursing home address navigation
Standard hardware facilities	Tableware, beds, multimedia equipment, rehabilitation facilities, entertainment facilities, carpets, tables, and chairs
Standard dress for medical personnel	Gown, doctor's dress, nurse's dress, chef's dress, nutrition consultant's dress, security dress and rehabilitation staff's dress
Food Nutrition and Quality Management Facilities	Cuisine kitchen, special food supply center, food nutrition control laboratory

This study interviewed nine senior and middle managers and medical staff of K-brand nursing homes who are engaged in service quality management. The list of interviewees is shown in Table 4-2.

Table 4-2 List of interviewees engaged in service quality management in three surveyed nursing homes

No.	Sex	Age	Position	Length of service	Interview date
1	Male	42	Vice-Chairman of K group	From 2012	April 4, 2016
2	Female	40	Manager, Doctor	From 2012	April 6, 2016
3	Female	36	The manager responsible for brand building	From 2013	February 6, 2016
4	Male	33	The manager responsible for service quality supervision	From 2014	February 15, 2016
5	Female	51	Doctor	From 2012	February 26, 2016
6	Female	38	Technician	From 2012	February 10, 2016
7	Female	60	Nurse	From 2014	February 25, 2016
8	Female	35	Nurse	From 2012	February 25, 2016
9	Female	33	Nurse	From 2012	February 26, 2016

After field observation and interviews and based on the review of the previous literature, the measurement items of the SERVQUAL scale are revised. Through translation and context transformation, one measurement item in Tangibility of SERVQUAL is revised as follows: (1) the staff of nursing homes dresses appropriately and has neat appearance; two measurement items in Reliability are revised as follows: (2) the promises of nursing homes are fulfilled at a certain time; (3) the old-age care services are provided timely; two items of measurement items in the Responsiveness of SERVQUAL are revised as follows: (4) the staff of nursing homes will tell me the exact time to provide services; (5) the staff of nursing homes is always ready to help me; the two measurement items in Assurance are revised as follows: (6) the behaviors of the staff of nursing home have brought trust to me; (7) the staff of nursing homes has the knowledge enough to answer my questions. These seven measurement items make up

the standardized presentation of the quality of service scale in this study. Through translation and context transformation, four items of Empathy are revised as follows: (8) nursing home gives me special attention; (9) nursing home employees pay personal attention to me; (10) nursing home can bring me the greatest benefits; (11) nursing home employees understand my special needs. These four items constitute the interaction of the quality of service scale in this study.

This scale is also based on the format of a typical seven-level Likert item using the scale of 1 to 7 to express your approval degree, with "1" representing "Extremely disagree", "2" representing "Disagree", "3" representing "Partially disagree", "4" representing "Neither agree nor disagree", "5" representing "Partially agree", "6" representing "Agree", and "7" representing "Extremely agree". The average score of all items reflects the overall consumer satisfaction. The higher the score is, the higher the consumer satisfaction with the nursing home. The average score of all items reflects the overall consumer perceived service quality. The higher the score, the higher the consumer perceived service quality of the nursing home.

4.2.2 Consumer satisfaction

This study adopts the definition of Pan (2016), that is, consumer satisfaction refers to the extent to which the elderly consumers' needs and wishes have been met. Consumer satisfaction is an important variable to measure the life quality and mental health level of the elderly in nursing homes.

Customer satisfaction in this study is measured from three aspects: consumer expectation (Liang, 2007), perceived quality (Liu, 2013), and perceived value (Chen, 2010). It takes Yu (2016)'s research view on consumer satisfaction regarding old-age care services. Three items of measurement are revised as follows: (1) "Generally speaking, I am satisfied with the services of the nursing home"; (2) "The performance of the nursing home has exceeded my expectations"; and (3) "The performance of the nursing home has exceeded my greatest expectations for the services of the nursing home".

This scale is also based on the format of a typical seven-level Likert item using the scale of 1 to 7 to express your approval degree, with "1" representing "Extremely disagree", "2" representing "Disagree", "3" representing "Partially disagree", "4" representing "Neither agree nor disagree", "5" representing "Partially agree", "6" representing "Agree", and "7" representing "Extremely agree". The average score of all items reflects the overall consumer satisfaction. The higher the score is, the higher the consumer satisfaction with the nursing

home.

4.2.3 Market segmentation

Based on the review of bases of market segmentation in the previous chapter, this study subdivides the old-age care service market from two bases: brand of nursing home and individual characteristic. Hence, apart from the segmentation of the consumers market (demand side), it also takes the industry structure (supply side characteristics) into account.

Therefore, the measurement items of market segmentation in this study include: (1) the name of the surveyed nursing home; (2) the gender of the elderly consumer; (3) the age of the elderly consumer; (4) the nationality of the elderly consumer; (5) the elderly consumer' s post before the retirement; and (5) the average monthly income of the consumer. Based on the respondents' responses to the above items, the market segmentation information of consumers is obtained.

4.3 Data collection

The three K-brand nursing homes in Beijing are respectively located in Qingta area, Shuangqiao area, and Yizhuang area.

The questionnaire survey was conducted among elderly patients in the nursing homes in June 2016 to measure two dimensions of perceived service quality, namely standardized presentation & interaction and consumer satisfaction. Research data are collected from self-filling questionnaires.

Before the questionnaire survey was conducted, the managers of three K-brand nursing homes were required to prepare a numbered list of elderly consumers to be polled. A total of 370 questionnaires were sent out to the three nursing homes and 360 questionnaires were collected. After the above process, 355 valid questionnaires were finally validated for further use. The number of respondents in Qingta, Yizhuang and Shuangqiao Nursing Home is 103 (29%), 149 (42%) and 103 (29%) respectively. The sample is representative and the sample size meets the needs of this study. Then, the valid questionnaires are numbered and the database is established using software Epidata 3.1 to ensure the reliability of the research data. The strict quality control is guaranteed in the process of data collection and data input. Therefore, the research data have high reliability and quality.

4.4 Statistical analysis

Description statistics: Sample data are statistically analyzed using frequency distribution table and the three K-brand nursing homes are compared.

Reliability analysis: Cronbach's alpha coefficient is used to evaluate the internal consistency of the scale. It is generally believed that the reliability of the scale is good when Cronbach's alpha coefficient is more than 0.70.

Estimation of the structural equation model: the hypothesized structural equation model is established; use model fitting index (e.g. CFI, TLI, RMSEA, SRMR) to judge the fitting degree of actual data structure and theoretical structure; estimate and test the path coefficient of the structure.

Statistical analyses were conducted using SPSS 24 and Mplus 6.1.

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Chapter 5: Results

5.1 Sample characterization

Table 5-1 provides a summary of the 355 respondents in the sample. In terms of the nursing homes, the interviews in Qingta Nursing Home, Yizhuang Nursing Home, and Shuangqiao Nursing Home account for 103 (29%), 149 (42%), and 103 (29%) respondents, respectively.

Overall, we conclude that: 179 (50.4%) are males; the counts (and percentages) of the age groups "63-68 years old", "69-74 years old", "75-80 years old", "81-86 years old", "87-92 years old", and "93-98 years old" are 29 (8.2%), 59 (16.6%), 73 (20.6%), 97 (27.3%), 73 (20.6%), and 24 (6.8%) respondents, respectively. Regarding job position of respondents, 124 (34.9%), 138 (38.9%), and 93 (26.2%) who are "Governmental officials", "College professors", and "Entrepreneurs", respectively. In terms of nationality, "Chinese nationality", "American nationality (Chinese), and "British nationality (Chinese)" are 338 (95.2%), 7 (2.0%), 10 (2.8%), respectively. Finally, analyzing classes of income, we conclude that 8 (2.3%), 67 (18.9%), 133 (37.5%), 38 (10.7%), and 109 (30.7%) respondents belong to "<8000 (RMB)", "8000-17999", "18000-29999", "30000-49999", and "≥50000", respectively.

For the Qingta Nursing Home, we have:

In terms of gender, "male" and "female" include 51 people and 52 people and account for 49.5% and 50.5%, respectively. In terms of gender, the age with "63-68 years old", "69-74 years old", "75-80 years old", "81-86 years old", "87-92 years old", and "93-98 years old" is 4 people, 19 people, 22 people, 38 people, 19 people and one person, accounting for 3.9%, 18.4%, 21.4%, 36.9%, 18.4%, and 1.0%, respectively. In terms of interviewee types, "Governmental officials", "College professors", and "Entrepreneurs" have 94 people, 7 people, and 2 people and occupy 91.3%, 6.8%, and 1.9%, respectively. In terms of nationality, "Chinese nationality", "American nationality (Chinese) and "British nationality (Chinese)" have 100 people, one person, 2 people and occupy 97.1%, 1%, and 1.9%, respectively. In terms of monthly incomes, incomes with "<8000", "8000-17999", "18000-29999", "30000-49999", and "≥50000" include 4 people, 50 people, 41 people, 4 people, and 4 people and account for 3.9%, 48.5%, 39.8%, 3.9% and 3.9%, respectively.

Table 5-1 Sample characterization

Nursing home	Qingta Nursing Home		Yizhuang Nursing Home		Shuangqio Nursing Home		Total	
No. of respondents	103		149		103		355	
%	29.0		42.0		29.0		100.0	
Sex of respondent								
Male	51	49.5%	77	51.7%	51	49.5%	179	50.4%
Female	52	50.5%	72	48.3%	52	50.5%	176	49.6%
Age of respondent **								
63 - 68 years old	4	3.9%	15	10.1%	10	9.7%	29	8.2%
69 - 74 years old	19	18.4%	30	20.1%	10	9.7%	59	16.6%
75 - 80 years old	22	21.4%	31	20.8%	20	19.4%	73	20.6%
81 - 86 years old	38	36.9%	29	19.5%	30	29.1%	97	27.3%
87 - 92 years old	19	18.4%	34	22.8%	20	19.4%	73	20.6%
93 - 98 years old	1	1.0%	10	6.7%	13	12.6%	24	6.8%
Respondents occupation ***								
Government official	94	91.3%	24	16.1%	6	5.8%	124	34.9%
University professor	7	6.8%	121	81.2%	10	9.7%	138	38.9%
Entrepreneur	2	1.9%	4	2.7%	87	84.5%	93	26.2%
Nationality								
Chinese nationality	100	97.1%	144	96.6%	94	91.3%	338	95.2%
American nationality (Chinese)	1	1.0%	2	1.3%	4	3.9%	7	2.0%
British nationality (Chinese)	2	1.9%	3	2.0%	5	4.9%	10	2.8%
Monthly income ***								
Less than 8000	4	3.9%	1	.7%	3	2.9%	8	2.3%
8000-17999	50	48.5%	10	6.7%	7	6.8%	67	18.9%
18000-27999	41	39.8%	92	61.7%	0	0.0%	133	37.5%
30000-49999	4	3.9%	33	22.1%	1	1.0%	38	10.7%
≥50000	4	3.9%	13	8.7%	92	89.3%	109	30.7%

Note. Stars identify the p-value of the Chi-square Exact test: * ($p<0.05$), ** ($p<0.01$), and *** ($p<0.001$).

For the Yizhuang Nursing Home, we have:

In terms of gender, “male” and “female” include 77 people and 72 people and account for 51.7% and 48.3%, respectively. In terms of gender, the age with “63-68 years old”, “69-74 years old”, “75-80 years old”, “81-86 years old”, “87-92 years old”, and “93-98 years old” is 15 people, 30 people, 31 people, 29 people, 34 people, and 10 people, accounting for 10.1%, 20.1%, 20.8%, 19.5%, 22.8%, and 6.7%, respectively. In terms of interviewee types, “Governmental officials”, “College professors”, and “Entrepreneurs” have 24 people, 121 people, and 4 people, and occupy 16.1%, 81.2%, and 2.7%, respectively. In terms of nationality, “Chinese nationality”, “American nationality (Chinese) and “British nationality (Chinese)” have 144 people, 2 people, 3 people, and occupy 96.6%, 1.3%, and 2.0%, respectively. In terms of monthly incomes, incomes with “<8000”, “8000-17999”, “18000-29999”, “30000-49999”, and “≥50000” include one person, 10 people, 92 people, 33 people, and 13 people and account for 0.7%, 6.7%, 61.7%, 22.1% and 8.7%, respectively.

Overall, we conclude that: 179 (50.4%) are males; the counts (and percentages) of the age groups “63-68 years old”, “69-74 years old”, “75-80 years old”, “81-86 years old”, “87-92 years old”, and “93-98 years old” are 29 (8.2%), 59 (16.6%), 73 (20.6%), 97 (27.3%), 73 (20.6%), and 24 (6.8%) respondents, respectively. Regarding job position of respondents, 124 (34.9%), 138 (38.9%), and 93 (26.2%) who are “Governmental officials”, “College professors”, and “Entrepreneurs”, respectively. In terms of nationality, “Chinese nationality”, “American nationality (Chinese), and “British nationality (Chinese)” are 338 (95.2%), 7 (2.0%), 10 (2.8%), respectively. Finally, analyzing classes of income, we conclude that 8 (2.3%), 67 (18.9%), 133 (37.5%), 38 (10.7%), and 109 (30.7%) respondents belong to “<8000 (RMB)”, “8000-17999”, “18000-29999”, “30000-49999”, and “≥50000”, respectively.

For the Qingta Nursing Home, we have:

In terms of gender, “male” and “female” include 51 people and 52 people and account for 49.5% and 50.5%, respectively. In terms of gender, the age with “63-68 years old”, “69-74 years old”, “75-80 years old”, “81-86 years old”, “87-92 years old”, and “93-98 years old” is 4 people, 19 people, 22 people, 38 people, 19 people and one person, accounting for 3.9%, 18.4%, 21.4%, 36.9%, 18.4%, and 1.0%, respectively. In terms of interviewee types, “Governmental officials”, “College professors”, and “Entrepreneurs” have 94 people, 7 people, and 2 people and occupy 91.3%, 6.8%, and 1.9%, respectively. In terms of nationality, “Chinese nationality”, “American nationality (Chinese) and “British nationality (Chinese)” have 100 people, one person, 2 people and occupy 97.1%, 1%, and 1.9%, respectively. In

terms of monthly incomes, incomes with "<8000", "8000-17999", "18000-29999", "30000-49999", and "≥50000" include 4 people, 50 people, 41 people, 4 people, and 4 people and account for 3.9%, 48.5%, 39.8%, 3.9% and 3.9%, respectively.

For the Yizhuang Nursing Home, we have:

In terms of gender, "male" and "female" include 77 people and 72 people and account for 51.7% and 48.3%, respectively. In terms of gender, the age with "63-68 years old", "69-74 years old", "75-80 years old", "81-86 years old", "87-92 years old", and "93-98 years old" is 15 people, 30 people, 31 people, 29 people, 34 people, and 10 people, accounting for 10.1%, 20.1%, 20.8%, 19.5%, 22.8%, and 6.7%, respectively. In terms of interviewee types, "Governmental officials", "College professors", and "Entrepreneurs" have 24 people, 121 people, and 4 people, and occupy 16.1%, 81.2%, and 2.7%, respectively. In terms of nationality, "Chinese nationality", "American nationality (Chinese) and "British nationality (Chinese)" have 144 people, 2 people, 3 people, and occupy 96.6%, 1.3%, and 2.0%, respectively. In terms of monthly incomes, incomes with "<8000", "8000-17999", "18000-29999", "30000-49999", and "≥50000" include one person, 10 people, 92 people, 33 people, and 13 people and account for 0.7%, 6.7%, 61.7%, 22.1% and 8.7%, respectively.

For the Shuangqiao Nursing Home, we have:

In terms of gender, "male" and "female" include 51 people and 52 people and account for 49.5% and 50.5%, respectively. In terms of gender, the age with "63-68 years old", "69-74 years old", "75-80 years old", "81-86 years old", "87-92 years old", and "93-98 years old" is 10 people, 10 people, 20 people, 30 people, 20 people, and 13 people, accounting for 9.7%, 9.7%, 19.4%, 29.%, 19.4%, and 12.6%, respectively. In terms of interviewee types, "Governmental officials", "College professors", and "Entrepreneurs" have 6 people, 10 people, and 87 people and occupy 5.8%, 9.7%, and 84.5%, respectively. In terms of nationality, "Chinese nationality", "American nationality (Chinese) and "British nationality (Chinese)" have 94 people, 4 people, 5 people and occupy 91.3%, 3.9% and 4.9%, respectively. In terms of monthly incomes, incomes with "<8000", "8000-17999", "30000-49999", and "≥50000" include 3 people, 7 people, one person, and 92 people and account for 2.9%, 6.8%, 1.0%, and 89.3%, respectively.

Comparing the profiles of the nursing homes, we conclude regarding the sex of respondent, three nursing homes basically have no difference, and male-female distribution is relatively balanced. There is a relation between nursing homes and age distribution ($p<0.01$). Indeed, patients in Yizhuang Nursing Home are older than the ones in other two nursing

homes. Regarding job occupation of respondents, we observe a clear divide or segmentation between the three nursing homes ($p<0.001$). There are more governmental officials in Qingta Nursing Home, more college professors in Yizhuang Nursing Home, and more entrepreneurs in Shuangqiao Nursing Home. Regarding nationally, there are no differences between the three nursing homes, with a heavy proportion of respondents holding Chinese nationality. Finally, there is a strong relation between nursing homes and the distribution of income ($p<0.001$). In terms of monthly incomes, samples in Qingtan Nursing Home, Yizhuang Nursing Home, and Shuangqiao Nursing Home are mainly concentrated in 8,000 - 29,999, 18,000 - 49,999, and 50,000 RMB or more, respectively.

5.2 Measurement model

This section describes the reliability and fit of measurement models included in the conceptual model. Table 5-2 presents the loadings of the items used to measure each dimension and three measures of reliability. We observed that all loadings are above 0.75, which show good reliability of these items.

Regarding reliability, the Cronbach's alpha for all models is above 0.9, which indicates excellent reliability in the measurement of these three constructs. Additionally, the composite reliability (CR) indicators are all greater than 0.8, and the average variance extracted (AVE) are all greater than 0.5. We conclude that the indicators used are adequate to measure the three constructs in the conceptual model.

Table 5-3 gives the measures of goodness-of-fit for the three constructs. We conclude that CFI and TLI are greater than 0.9; RMSE is always below 0.088, and less than 0.1 is acceptable (good below 0.08); SRMR is always less than 0.05. We conclude that all constructs show a good fit to the data. We notice that consumer satisfaction construct presents a perfect fit as the model is saturated (measured by three items).

5.3 Testing hypotheses

5.3.1 Structural Model

Figure 5-1 summarizes the relationship between constructs and hypotheses. Significantly, this model is a MIMIC model, built on multiple indicators and causes.

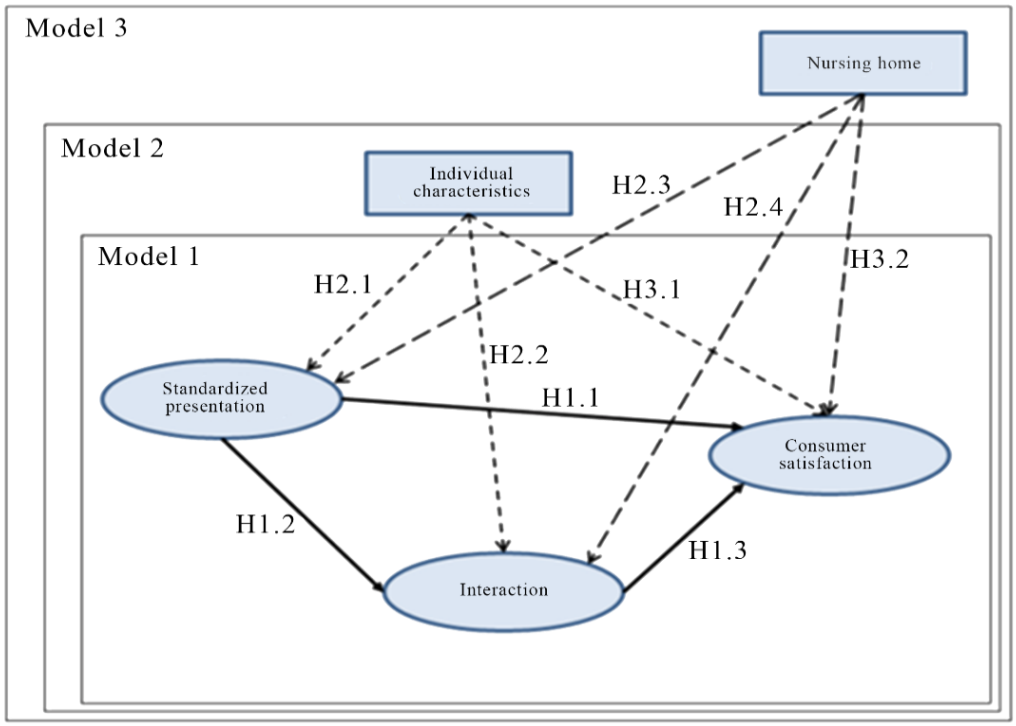
Table 5-2 Loadings and reliability measures

	Constructs and Items	Standardized loadings	Alpha	CR	AVE
Standardized presentation			0.965	0.882	0.517
1	The employees of the nursing home are well dressed and appear neat.	0.933			
2	When the nursing home promises to do something by a certain time, it does so.	0.788			
3	The nursing home provides its services in time.	0.862			
4	The employees of the nursing home tell me exactly when services will be performed.	0.907			
5	The employees of the nursing home are always willing to help me.	0.943			
6	The behavior of the employees of the nursing home instills confidence in me.	0.892			
7	The employees of the nursing home have the knowledge to answer my questions.	0.896			
Interaction			0.939	0.940	0.796
8	The nursing home gives me individual attention.	0.863			
9	The employees of the nursing home give me personal attention.	0.888			
10	The nursing home has my best interests at heart.	0.907			
11	The employees of the nursing home understand my specific needs.	0.911			
Consumer satisfaction			0.946	0.948	0.860
12	Overall, I feel satisfied with the nursing home.	0.910			
13	The nursing home's performance exceeds my expectations.	0.961			
14	The nursing home's performance exceeds my hypothetical ideal for nursing home service.	0.910			

Table 5-3 Model fit indicators (measurement models)

Constructs	CFI	TLI	RMSEA	SRMR
Standardized presentation	0.996	0.993	0.088	0.008
Interaction	0.999	0.996	0.050	0.006
Consumer satisfaction	1.000	1.000	0.000	0.000

Figure 5-1 Structural models and impacts



The core is based on the relationship between standardized presentation, interaction, and consumer (patient) satisfaction. Besides, the model looks into the impact of different nursing homes and specific consumer's individual characteristics on standardized presentation, interaction, and finally, consumer satisfaction.

Model 1 was designed in terms of general service of a nursing home, using tangible service (standardized presentation) and intangible interactive service (interaction) to test the relation with consumer satisfaction. In this model, the unique demand of every individual is not taken into account. In nursing homes with a lot of senior citizens, however, the individual patient could have a unique demand. Such demand can have an impact on the facilities of the nursing home, on managing service system, and on consumer satisfaction. Therefore, on top of Model 1, the researcher added such demand as an indicator named 'individual characteristics' into Model 2.

Model 3 is another addition to Model 2, focusing on the impact of nursing homes. The differences can include: 1. different geographical locations, according to the literature review, and because of that, different market conditions; 2. different physical facilities even for nursing homes of the same brand, due to varied

development plans of the real estate companies that manage the land. This could also cause a distinct interaction. Thus, features of the nursing home can also influence consumer satisfaction directly or indirectly. With this thought, the researcher added 'nursing home' as part of Model 3.

It is hoped that the building up process tests the hypotheses and improves the understanding of the service quality management for nursing homes and consumer satisfaction.

5.3.2 Model fit indicators

Table 5-4 Model fit indicators

	$\chi 2$ statistic	df	$\chi 2$/df	CFI	TLI	RMSEA	SRMR	AIC	BIC	aBIC
Model 1	219.60	71	3.09	0.977	0.971	0.077	0.029	11254.41	11440.27	11288.00
Model 2	560.48	192	2.92	0.951	0.937	0.074	0.032	10572.33	10885.97	10629.01
Model 3	658.48	214	3.08	0.943	0.927	0.076	0.033	10317.63	10654.50	10378.50

5.3.2.1 Model 1

Table 5-4 shows that Chi-square statistic is 219.60 and degree of freedom is 71. Chi-square to df ratio is 3.09, which is less than 5 and, thus, indicates a good fit. CFI figure is 0.977, higher than 0.9 and showing a good fit. TLI number is 0.971 higher than 0.9, indicating a good fit. RMSEA statistic is 0.077, less than 0.08 and, thus, a good fit. SRMR is 0.029, less than 0.05, which implies a good fit.

5.3.2.2 Model 2

Table 5-4 shows that Chi-square figure is 560.48 and degree of freedom is 192. The ratio of chi-square to df is 2.92 less than 3, showing a good fit. CFI is 0.951, higher than 0.9 and indicating a good fit. TLI is 0.937, also higher than 0.9 and, thus, showing a good fit. RMSEA figure is 0.074, which is less than 0.08 and is a good fit. SRMR number is 0.032, less than 0.05 and, thus, showing a good fit.

5.3.2.3 Model 3

Table 5-4 shows that Chi-square data is 658.48 and degree of freedom is 214. Chi-square to df ratio is 3.08, indicating a good fit to be less than 5 and close to 3. CFI figure is 0.943, higher than 0.9 and showing a good fit. TLI number is 0.927, higher than 0.9 and implying a good fit. RMSEA is 0.076, which is less than 0.08

and, thus, shows a good fit. SRMR is 0.033, less than 0.05 and indicating a good fit.

Furthermore, a comparison between the three models in AIC, BIC, and aBIC numbers shows a descending trend. That is to say, the model is optimized for model 1 to 3, and, thus, the model improves the explanation of consumer satisfaction.

5.3.3 Measurement models

Table 5-5 Factors loadings (Models 1, 2, and 3)

Variables		Model 1	Model 2	Model 3
Standardized presentation	A3	0.925	0.930	0.930
	B1	0.802	0.803	0.799
	B4	0.874	0.876	0.874
	C1	0.898	0.892	0.898
	C3	0.939	0.935	0.936
	D1	0.899	0.897	0.898
	D4	0.897	0.896	0.896
Interaction	E1	0.855	0.868	0.871
	E3	0.899	0.887	0.878
	E4	0.902	0.905	0.910
	E5	0.911	0.909	0.909
Consumer satisfaction	G1	0.911	0.913	0.920
	G2	0.949	0.947	0.946
	G3	0.923	0.923	0.918

5.3.3.1 Model 1

The standardized presentation contains 7 items: A3, B1, B4, C1, C3, D1, and D4. Table 5-5 shows that factors loadings are 0.925, 0.802, 0.874, 0.898, 0.939, 0.899, and 0.897, respectively. All the loadings are above 0.5, indicating an ideal validity. The interaction contains 4 items, from E1 to E4, with loadings of 0.855, 0.899, 0.902, and 0.911, respectively. This also shows good validity since they are all above 0.5. Consumer satisfaction contains 3 items: G1-3. Loadings for them are 0.911, 0.949, and 0.923, respectively; all above 0.5, indicating good validity. The small differences in loading estimates when compared with Table 5-2 result from missing data. Model 1 is constrained to data needed for Models 2 and 3.

5.3.3.2 Model 2

The standardized presentation contains 7 items: A3, B1, B4, C1, C3, D1, and D4. Table 5-5 shows that factors loadings are 0.930, 0.803, 0.876, 0.892, 0.935, 0.897, and 0.896, respectively. All of them are above 0.5, showing an ideal validity. The interaction contains 4 items, from E1 to E4, with loadings of 0.868, 0.887, 0.905, and 0.909, respectively. Loadings are all above 0.5, implying a good structural validity. Consumer satisfaction contains 3 items: G1-3. Loadings for them are 0.913, 0.947, and 0.923, respectively; all above 0.5, showing ideal validity.

5.3.3.3 Model 3

The standardized presentation contains 7 items: A3, B1, B4, C1, C3, D1, and D4. Table 5-5 shows that factors loadings are 0.930, 0.799, 0.874, 0.898, 0.936, 0.898, and 0.896, respectively. All of the numbers are above 0.5 and, thus, show good validity. The interaction contains 4 items, from E1 to E4, with loadings of 0.871, 0.878, 0.910, and 0.909, respectively. Loadings are all above 0.5, indicating good validity. Consumer satisfaction contains 3 items: G1-3. Loadings for them are 0.920, 0.946, and 0.918, respectively; all above 0.5, showing ideal validity.

In conclusion, standardized presentation, interaction, and consumer satisfaction all have ideal validity in Models 1 to 3.

5.3.4 Structural components

Table 5-6 Structural and mediation impacts (Models 1, 2, and 3)

Structural effects (standardized)	Model 1			Model 2			Model 3		
	Estimate	S.E.	p-value	Estimate	S.E.	p-value	Estimate	S.E.	p-value
Standardized presentation -> Interaction	0.807	0.022	0.000	0.667	0.067	0.000	1.162	0.099	0.000
Interaction -> Consumer satisfaction	0.042	0.044	0.339	0.157	0.059	0.008	0.260	0.080	0.001
Standardized presentation -> Consumer satisfaction	0.920	0.038	0.000	0.898	0.068	0.000	0.683	0.133	0.000

5.3.4.1 Model 1

Table 5-6 shows that the estimate of the standardized slope of the impact of standardized presentation on interaction is 0.807. The p-value for standardized presentation to interaction is 0.000, which is less than 0.05 and the impact is statistically significant. i.e., standardized presentation increases interaction increases as well. Thus, as service facilities get upgraded, consumers have a higher expectation for intangible interactive service.

interaction does not have a significant impact on consumer satisfaction since the p-value is 0.339, higher than 0.05. This indicates that interaction and consumer satisfaction in Model 1, without impact from individual characteristics of consumers, have little relation with each other. This also supports that individual characteristics of consumers, as a variable, may have an impact on intangible interactive service and consumer satisfaction. This supports the introduction of Model 2.

The estimate of the standardized slope of the impact of standardized presentation on consumer satisfaction is 0.920. The p-value for standardized presentation to consumer satisfaction is 0.000, which is lower than 0.05 and the impact is statistically significant. As standardized presentation gets bigger, consumer satisfaction does, too. Without impact from individual characteristics and nursing homes, facilities have an impact on consumer satisfaction.

5.3.4.2 Model 2

Table 5-6 shows that the estimate of the standardized slope of the impact of standardized presentation on interaction is 0.667, and the p-value is 0.000, which is less than 0.05 and so implies a significant impact. As standardized presentation goes up, interaction does, too. Thus, as service facilities get upgraded, consumers' physiological interactive service increases. Considering the impact of individual characteristics, the upgrade of facilities would be more tailored, and consumers' expectation for intangible interactive service also grows.

The estimate of the standardized slope of the impact of interaction on consumer satisfaction is 0.157, and the p-value is 0.008, which is less than 0.05. As interaction increases, consumer satisfaction increases. Under the impact of individual characteristics, consumers accept and recognize interaction. And particular service items can directly influence consumer satisfaction.

The estimate of the standardized slope of the impact of standardized presentation on consumer satisfaction is 0.898. The p-value for standardized presentation to consumer satisfaction is 0.000, which is lower than 0.05 and the impact is statistically significant. As standardized presentation gets bigger, consumer satisfaction does, too. With the impact of individual characteristics, facilities have an impact on consumer satisfaction.

5.3.4.3 Model 3

Table 5-6 shows that the estimate of the standardized slope of the impact of standardized presentation on interaction is 1.162, and the p-value is 0.000, which is lower than 0.05. As standardized presentation grows, interaction goes up. Considering the impact of individual characteristics and nursing homes, the upgrade of facilities will be more tailored and more geographically specific. Consumers' expectation for interaction is fully satisfied. We can also see that under dual impact from individual characteristics and nursing homes, standardized presentation and interaction facilitate each other.

The estimate of the standardized slope of the impact of interaction on consumer satisfaction is 0.260, and the p-value is 0.008, which is lower than 0.05. As interaction increases, consumer satisfaction does, too. With impact from individual characteristics and nursing homes, consumers recognize interaction and such service can directly influence consumer satisfaction.

The estimate of the standardized slope of the impact of Standardized Presentation on Consumer satisfaction is 0.683, and the p-value is 0.000, which is lower than 0.05. As Standardized presentation gets bigger, Consumer satisfaction does, too. With the impact of individual characteristics and nursing homes, facilities have an impact on consumer satisfaction. We can see that consumers do not lower their satisfaction towards Standardized Presentation because of differences in service facilities provided by different nursing homes in different places. There exists a balance between Standardized Presentation and Consumer Satisfaction under the impact of individual characteristics and nursing homes.

5.3.5 Individual characteristics impact

5.3.5.1 Individual characteristics' impact on the standardized presentation

Table 5-7 describes the impact of the demographic and socioeconomic variables – Sex, Age, Respondent occupation, Nationality, and Monthly income – on the constructs.

Regarding Sex, males assess standardized Presentation more favorably (0.1117) than females, and the difference is significant. That is, males have a higher score than females in standardized Presentation ($p<0.05$). This implies that males have fewer requirements on facilities than females, while the latter have more detailed requirements.

As for Age, for 69 to 74 year old, 81 to 86 year olds, 87 to 92 year old, and 93 to 96 year old, the figures are -0.105, -0.140, -0.134, respectively; implying that all samples have a negative impact on standardized Presentation. It can be concluded that as people ages, demand for facilities drops. Considering the impact on interaction, it seems that the elders need more emotional interaction or company.

As far as Respondent occupation is concerned, the estimate for university professor and entrepreneur are -0.433 and -0.680, both having a significant negative impact on standardized Presentation ($p<0.05$). The data shows that under the sole influence of Respondent occupation, university professors and entrepreneurs have different demands towards facilities, i.e., these two groups have a lower score for standardized presentation than Government officials and the difference is significant.

In terms of Nationality, Other has an estimate of -0.081, having a significant negative impact on standardized Presentation ($p<0.05$) comparing with the reference (Chinese nationality). Under the influence of this factor only, recognition towards service facilities varies among different nationalities, mostly because of different cultures or lifestyles.

When it comes to Monthly income, statistics for 18000-27999 and 30000 and more are -0.243 and -0.403, both with a significant negative impact on standardized presentation ($p<0.05$). We can see that people from higher income groups have lower scores towards facilities of the nursing home and the difference is significant.

Table 5-7 Impact of individual characteristics (Model 2)

Variables	Standardized presentation			Interaction			Consumer satisfaction		
	Estimate	S.E.	p-value	Estimate	S.E.	p-value	Estimate	S.E.	p-value
Sex of respondent (ref: Female)									
Male	0.118	0.028	0.000	0.222	0.031	0.000	-0.042	0.025	0.096
Age of respondent (ref: 63 - 68 yo)									
69 - 74 yo	-0.105	0.046	0.022	-0.033	0.048	0.492	-0.012	0.037	0.752
75 - 80 yo	-0.062	0.048	0.192	-0.069	0.050	0.167	-0.070	0.038	0.066
81 - 86 yo	-0.140	0.052	0.007	-0.167	0.055	0.003	0.002	0.042	0.955
87 - 92 yo	-0.134	0.049	0.006	0.033	0.051	0.522	0.010	0.039	0.789
93 - 98 yo	-0.111	0.036	0.002	-0.016	0.038	0.674	-0.018	0.029	0.538
Respondents occupation (ref: Government official)									
University professor	-0.433	0.040	0.000	0.195	0.048	0.000	-0.055	0.039	0.162
Entrepreneur	-0.680	0.049	0.000	-0.193	0.068	0.005	0.082	0.052	0.115
Nationality (ref: Chinese nationality)									
Other	-0.081	0.030	0.007	0.016	0.032	0.625	0.034	0.024	0.164
Monthly income (ref: Less than 18000)									
18000-27999	-0.243	0.043	0.000	-0.091	0.047	0.054	-0.043	0.036	0.229
30000 and more	-0.403	0.055	0.000	-0.033	0.063	0.607	-0.008	0.048	0.865

In conclusion, every individual variable has a significant impact on standardized presentation.

5.3.5.2 Individual characteristics' impact on interaction

Table 5-7 shows that Sex, Age, and respondent occupation have a significant positive impact on interaction ($p<0.05$), while Nationality and Monthly income do not.

As far as Sex is concerned, Male is 0.222 in the estimate, having a significant positive impact on interaction and a much higher score than female ($p<0.05$). Just from the perspective of sex, males have fewer requirements on interaction than females, who have a much-diversified demand.

As for Age, 81 to 86 years old have an estimate of -0.167, with a significant negative impact on interaction ($p<0.05$). Because this group of people is highly paralyzed, they cannot accept any interaction in service.

In terms of respondent occupation, the estimate for a university professor is 0.195, showing a significant positive impact on interaction ($p<0.05$). The number for an entrepreneur is -0.193, with a significant negative impact on interaction ($p<0.05$). Under the influence of occupation only, university professors have higher recognition towards tailored interaction in intelligence as they have smarter minds, while entrepreneurs want more cultural and entertainment interaction, like appreciating cultural relics or Chinese calligraphy. In this regard, there is still a shortage of service staff.

To sum up, some variables have a significant impact on interaction: intangible interactive service while others like Nationality and Monthly income do not. The occupation has a substantial impact on emotional interaction, especially for different age and sex groups.

5.3.5.3 Individual characteristics' impact on consumer satisfaction

The figures indicate no significant impact on consumer satisfaction ($p>0.05$) from any single variable. For a variable to have an impact on consumer satisfaction, either standardized presentation or interaction has to be taken into account. A variable cannot influence consumer satisfaction alone since it is a quality of the consumer himself and, thus, needs a connection with external factors like a standardized presentation or an interactive service.

5.3.6 Nursing home impact

5.3.6.1 Nursing Home's impact on the standardized presentation

Table 5-8 shows the impact of Nursing Home on the constructs.

In terms of Sex, Male's estimate is 0.143, indicating a significant positive impact on standardized presentation and a much higher score than female ($p<0.05$). Under the impact of the nursing home, males have fewer requirements for facilities than females. Females tend to have more detailed requirements for the facilities of the nursing home.

When it comes to Age, the estimates are -0.098, -0.141, -0.109, and -0.070 for 69 to 74 year olds, 81 to 86 year olds, 87 to 92 year olds, and 93 to 96 year olds, respectively; all having significant negative impact on standardized presentation ($p<0.05$). As people age, demand for and recognition towards facilities decrease at the same time.

As for respondent occupation, university professors and entrepreneurs have estimates of -0.090 and -0.392, respectively, both having a significant negative impact on standardized presentation ($p<0.05$). Under the impact of the nursing home, university professors and entrepreneurs do not recognize facilities provided by the nursing home. This has something to do with their occupational backgrounds as they have an independent way of assessment and can express such assessment properly, like through questionnaire about service quality or interviews.

As far as Nationality is concerned, the estimate for Other is -0.110, with a significant negative impact on standardized presentation ($p<0.05$). Under the impact of the nursing home, different nationalities have different degrees of recognition towards facilities. This difference stems from different cultures and lifestyles.

In terms of Monthly income, the estimates for 18000-27999 and 30000 and more are -0.189 and -0.325, both with a significant negative impact on standardized presentation ($p<0.05$). Different income groups have different degrees of recognition towards the service facilities of the nursing home.

Table 5-8 Impact of nursing home (Model 3)

Variables	Standardized presentation			Interaction			Consumer satisfaction		
	Estimate	S.E.	p-value	Estimate	S.E.	p-value	Estimate	S.E.	p-value
Sex of respondent (ref: Female)									
Male	0.143	0.022	0.000	0.138	0.031	0.000	-0.043	0.024	0.075
Age of respondent (ref: 63 - 68 yo)									
69 - 74 yo	-0.098	0.036	0.007	0.018	0.047	0.705	-0.027	0.035	0.447
75 - 80 yo	-0.061	0.038	0.108	-0.027	0.048	0.582	-0.080	0.036	0.027
81 - 86 yo	-0.141	0.041	0.001	-0.089	0.054	0.096	-0.008	0.040	0.840
87 - 92 yo	-0.109	0.038	0.005	0.076	0.050	0.123	-0.010	0.038	0.801
93 - 98 yo	-0.070	0.029	0.014	0.000	0.037	0.996	-0.025	0.027	0.360
Respondents occupation (ref: Government official)									
University professor	-0.090	0.037	0.014	0.036	0.047	0.452	-0.031	0.036	0.387
Entrepreneur	-0.392	0.055	0.000	-0.072	0.079	0.362	0.028	0.058	0.629
Nationality (ref: Chinese nationality)									
Other	-0.110	0.025	0.000	0.077	0.033	0.019	0.016	0.026	0.530
Monthly income (ref: Less than 18000)									
18000-27999	-0.189	0.036	0.000	-0.059	0.048	0.218	-0.032	0.036	0.374
30000 and more	-0.325	0.044	0.000	0.068	0.064	0.290	-0.028	0.049	0.566
Nursing Home (ref: Yizhuang NH)									
Qingta NH	0.492	0.035	0.000	-0.559	0.069	0.000	0.173	0.073	0.018
Shuangqio NH	0.027	0.043	0.534	-0.158	0.056	0.005	0.096	0.044	0.029

In terms of Nursing home, the HN figure for Qingta is 0.492, implying a significant positive impact on standardized presentation ($p<0.05$), and much higher than other nursing homes in the standardized presentation. Qingta has much better facilities than other nursing homes. Upon reflecting back on the sample description, we can see that Qingta mainly serves government officials. Here social stature has an impact on the social distribution of resources. Besides, government officials in China generally keep a low profile, having spiritual interests, like Confucianism or politics. As a result, facilities provided by the nursing home can easily meet their demands. On the other hand, university professors and entrepreneurs have their own assessment towards facilities and like to express their needs in a rational way.

5.3.6.2 Nursing Home's impact on interaction

Table 5-8 shows that Sex, Nationality, and Nursing home have a significant positive impact on interaction ($p<0.05$), while Age, Respondent occupation, and Monthly income do not.

As far as Sex is concerned, the estimate for Male is 0.138, indicating a significant positive impact on interaction and a much higher score than female ($p<0.05$). Males have fewer requirements for interaction than female, who have more diversified requirements.

When it comes to Nationality, the estimate for Other is 0.077, with a significant positive impact on interaction ($p<0.05$). For different nationalities, they are basically satisfied with the interaction provided by the nursing home.

As for Nursing home, the NH figures for Qingta and Shuangqiao are -0.559 and -0.158 respectively, showing the significant negative impact on interaction ($p<0.05$). Qingta and Shuangqiao have much lower scores in NH than Yizhuang. In Qingta nursing home, government officials, as main consumers, present Confucian traditions in their ways of interaction. They prefer expressing views in a rounded and indirect way, with the expectation that service staff could try to find out what they want. Due to such habit, current interaction still falls short of consumer's needs. In Shuangqiao nursing home, where entrepreneurs are the main consumers, they focus more on tailored, recreational interaction, like appreciating cultural relics or Chinese calligraphy. In Yizhuang nursing home, since the majority are university professors, they are more flexible in interaction. They usually adapt to the habits of

service staff in a very astute way.

5.3.6.3 Nursing home's impact on consumer satisfaction

Table 5-8 indicates that Age and Nursing home have a significant impact on consumer satisfaction ($p<0.05$); while Sex, Respondent occupation, Nationality, and Monthly income do not ($p>0.05$).

When it comes to Age, the estimate for 75 to 80 year old is -0.080, implying a significant negative impact on consumer satisfaction ($p<0.05$). 75 to 80 year old have a much lower score in consumer satisfaction than other age groups. 75 to 80 year old constitute the second largest age group for nursing homes, taking up 20.6% in all consumers. This group of people have spent nearly a year in nursing homes and, thus, have basically experienced all service items. At this point, they will come up with new requirements for further experience. And because of the time limit, such requirements still remain unsatisfied. Nursing homes will do their best to answer such claims in the second phase of service for these consumers.

In terms of Nursing home, the NH numbers for Qingta and Shuangqiao are 0.173 and 1.096 respectively, having a significant positive impact on consumer satisfaction ($p<0.05$). Qingta and Shuangqiao have much higher NH numbers than Yizhuang in consumer satisfaction. Because Qingta and Shuangqiao have different kinds of consumers as main consumers, they form a different distribution of facilities, which in turn has an impact on consumer satisfaction.

5.3.7 Mediation impact

5.3.7.1 Model 1

Table 5-9 shows that the estimate of standardized presentation on consumer satisfaction is 0.920, and the p-value is 0.000, which is less than 0.05. As standardized presentation grows, consumer satisfaction goes up, too. Thus, facilities can directly influence consumer satisfaction. That is to say, enough facilities can offset the lack of intangible interactive service and, thus, have an impact on consumer satisfaction. What is worth mentioning is that just improving consumer satisfaction through providing facilities would induce higher cost

and depreciation of facilities. This is not an economical way of operation for service providers.

Table 5-9 Structural and mediation impacts (Models 1, 2, and 3)

Effects	Model 1			Model 2			Model 3		
	Estimate	S.E.	p-value	Estimate	S.E.	p-value	Estimate	S.E.	p-value
Direct	0.920	0.038	0.000	0.898	0.068	0.000	0.986	0.079	0.000
Indirect	0.034	0.035	0.337	0.105	0.038	0.006	0.303	0.090	0.001
Total	0.954	0.008	0.000	1.003	0.051	0.000	0.683	0.133	0.000

Since interaction does not have a significant impact on consumer satisfaction, the interaction does not mediate the relation between standardized presentation and consumer satisfaction. Further research shall draw on Models 1 and 2.

5.3.7.2 Model 2

Table 5-9 shows that the estimate for standardized presentation on consumer satisfaction (direct effect) is 0.898, and the p-value is 0.000, which is less than 0.05. As standardized presentation grows, consumer satisfaction does, too. With the impact of individual characteristics, facilities can still influence consumer satisfaction.

The direct impact of standardized presentation on consumer satisfaction is 0.898, while the indirect impact is 0.105. The impact in total is 1.003 and the indirect impact (impact on consumer satisfaction through interaction) is significant. Tailored and tangible service facilities can influence consumer satisfaction. On top of that, adding interaction can better improve consumer satisfaction.

Comparing Model 2 with Model 1, the biggest change is that the impact of interaction on consumer satisfaction turns from insignificant to significant. Suffice it to say that individual characteristics have a big impact on interaction and, thus, on consumer satisfaction and the former becomes a mediator factor.

5.3.7.3 Model 3

Table 5-9 shows that the direct impact of standardized presentation on consumer satisfaction is 0.986, while the indirect impact is 0.303. In total, the impact is 0.683, with indirect impact (impact on consumer satisfaction through interaction) being significant. Thus,

providing tailored and tangible service facilities at different nursing homes can substantially influence consumer satisfaction. Such tailored facilities require more addition of interaction. This combination can improve consumer satisfaction more effectively.

Comparing Model 3 with Model 2, standardized presentation has increased indirect impact on consumer satisfaction through interaction. This implies that when having a distribution of tailored service facilities at different nursing homes, suitable interaction should be integrated.

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Chapter 6: Discussions

In general, there is no doubt that Hypothesis 1 stands. And suffice it to say that Perceived Service Quality in a whole has a significant impact on consumer satisfaction; as the p-value for both components in Perceived Service Quality, standardized presentation and Interaction are lower than 0.01 in Model 3, as shown in Table 5-8. This indicates that no matter what specialized market segmentation, focusing on improving consumers' perception of the service quality can always translate into higher satisfaction. This piece of advice may seem generic. Comparing the two components of Perceived Service Quality, though, shows different impacts coming from the two components on consumer satisfaction. While standardized presentation always keeps a significant impact on consumer satisfaction all the way through Models 1 to 3, Interaction lacks a significant impact on consumer satisfaction in Model 1, showing afterward a significant impact in Models 2 and 3. Notably, the p-value for the impact of Interaction on consumer satisfaction experienced a decreasing trend from Model 1 to Model 3. That is to say, the impact of this component particularly becomes more and more significant with the inclusion of Individual characteristics and then Nursing homes. This difference points to the different natures of standardized presentation and Interaction. Obviously, the standardized presentation is more about objective, tangible facilities, towards which most people hold the same view as to whether such facilities are good or not. The quality and function of facilities are rather stable and cannot be changed by people's feelings. Interaction, on the other hand, is more subjective, depending on how people feel whether they get what they expect or what they want. That is why the impact of Interaction is not clear at the beginning but becomes increasingly obvious when different market segmentation factors are considered. In a general sense, Interaction is a secondary issue compared with standardized presentation with regard to the impact on consumer satisfaction. Considering different consumer groups, though, including age groups, income groups, etc., makes Interaction quite important for better consumer satisfaction. This suggests that some consumers regard Interaction a quite important part in their ratings for the service while others

do not. For management, this is of great value. As management staff of these nursing homes, they have to improve consumers' perception of service quality in a general sense. But they need to find a balance between investment in facilities and in training of employees. While the former may be more universally acceptable and can lead to faster improvement in consumer satisfaction, the latter also deserves certain attention when it comes to dealing with particularly demanding consumer groups. For very ambitious management staff especially in a newly-built nursing home, focusing on the improvement of facilities, like importing a lot of high-quality equipment abroad or digitalizing the service interface catering to specific needs of the elders, can translate into very fast improvement in consumer satisfaction, regardless of the gender, age, or income of the consumers. But in the mature or stable stage of development of nursing homes, when things are more about dealing with the individual consumer to avoid any dissatisfaction along the process, attention should be given to the classification of consumers into different groups or segmentation. In an ideal case, different kinds of service should be rendered to different groups of consumers. That raises the question of which group is more concerned about Interaction. To answer this question would be hugely beneficial to the future strategy of these nursing homes, since upon finding out the answer the management can know what their consumers want to be happy. This part is concerned with testing Hypothesis 2. But still, there is no denying the fact that improvement in standardized presentation rather than Interaction is the easier path to high consumer satisfaction.

When it comes to Hypothesis 2, the situation is more complex, since this hypothesis can be divided into four sub-hypotheses: whether there exists an impact from Individual Characteristics on standardized presentation, from Individual Characteristics on Interaction, from Nursing homes on standardized presentation, and from Nursing homes on Interaction. And the result shows differently for these four hypotheses. While Individual Characteristics have a significant impact on standardized presentation, its impact on Interaction is not significant in a general sense, as most of the consumer groups except for sex groups responded similarly to Interaction. Table 5-7 suggests that males are more satisfied with the facilities whereas females tend to be more demanding. While among age groups the situation is too complicated to draw a clear pattern, monthly income shows a very obvious negative

correlation with satisfaction rate in the standardized presentation. It seems that as consumers' income increases, they become harder to satisfy. And the difference between three income groups in satisfaction with the standardized presentation is big. This trend is echoed in the pattern shown in different occupation groups, as entrepreneurs, with the highest average income, turn out to be the least satisfied group among the three; followed by university professors, who are second place in monthly income; and lastly, government officials, who have the lowest monthly income on average. This deserves the attention of the management staff of these nursing homes. Basically, if a nursing home is to deal with people with very high income, it is very likely that the nursing home would experience high demands from these consumers. But since these people can afford higher than the average price for the service in nursing homes, raising the entrance price and using the revenue to improve facilities would be a feasible way of satisfying these consumers. And by doing so, the nursing home also moves to the high end. On the other hand, nursing homes differ greatly in Interaction but not in standardized presentation. As for the latter, it seems that Yizhuang and Shuangqiao Nursing homes are of the same type, while Qingta Nursing home is a much better case, with an estimated score of 0.492 higher. This does not mean, however, that Qingta Nursing home necessarily owns the best facilities, yet the consumers there reported the happiest reaction about the facilities. And whether this difference can translate into a difference in consumer satisfaction in the end, or it is those Individual characteristics that are more influential in the impact of Market segmentation as a whole on consumer satisfaction hinges on the testing of Hypothesis 3.

Quite similar to Hypothesis 2, Hypothesis 3 should also be regarded separately. With 10 out of the 11 p-values for different consumer groups higher than 0.05, Individual characteristics fail to exert a significant impact on consumer satisfaction. This does not mean that Individual characteristics are not important and so does not deserve attention, though. It is worth mentioning that this factor does have a strong impact on standardized presentation, which is a quite important contributor to better consumer satisfaction. The problem with Individual characteristics may be that the preferences among various consumer groups are too scattered to draw a pattern along the change of groups. Monthly income is an exception. A

clear negative association can be seen as the income grows. But for the majority of Individual characteristics, the line connecting different groups and their preferences is quite erratic, with the satisfaction rate going up and down without a trend as the variables grow or fall. Simply put, the over-fragmentation of the impact from Individual characteristics relegates this factor compared with the other part of market segmentation, the Nursing homes. It is very clear from Table 5-7 that Nursing homes have a significant impact on consumer satisfaction, given the fact that the three nursing homes are quite different in satisfaction rate. Based on the estimate figures, we can lay out the rankings of the three, with Qingta Nursing home at the top, followed by Shuangqiao, and Yizhuang at the bottom. The disparity in consumer satisfaction between nursing homes clearly echoes the findings in Hypothesis 2, which shows that consumers in Qingta Nursing home reported the best satisfaction with the standardized presentation, followed by those in Shuangqiao and Yizhuang. We can see that the rankings for three nursing homes in terms of standardized presentation and consumer satisfaction are exactly the same. The nursing home with the best satisfaction rate in facilities wins the battle in overall consumer satisfaction. This conclusion also supports what we come to in testing Hypothesis 1, when we find out that standardized presentation exerts bigger and more obvious impact than Interaction on consumer satisfaction. And considering that a round of upgrade of facilities has a much shorter time cycle than the training of service staff, the management staff of these nursing homes may have to reshape their development strategy, moving some of the resources from the training or recruiting of staff to improving facilities. That said if extra effort is possible, special and even strange needs of specific consumer groups should not be neglected in the long run. In a word, to make everyone happy is a harsh ride. It is much harder to improve an extra 1% on 90% than to start from nothing to 90%.

Chapter 7: Conclusions

The main conclusions from this research are:

(1) standardized presentation and interaction are positively correlated with consumer satisfaction when dividing the market according to individual characteristics and nursing homes.

(2) All individual characteristics index have an impact on the perception of standardized presentation, some individual characteristics index have an impact on the perception of interaction, and some individual characteristics index have an impact on consumer satisfaction.

(3) Different nursing homes have different impact on consumer perceived service quality and consumer satisfaction.

(4) standardized presentation has a direct and indirect impact on consumer satisfaction; interaction has a direct impact on consumer satisfaction; standardized presentation has an indirect impact on consumer satisfaction through the interaction (mediator).

Admittedly, this research still suffers from specific limitations. The biggest two would be:

1. *The number of nursing homes chosen*. There is no doubt the more nursing homes are chosen, the more general the results are due to less influence from unique situations. Three is not a number big enough to be very representative of the whole situation in China, or even in Beijing. It is possible that these three nursing homes have unique characteristics of their own that are deviant from the common characteristics of nursing homes in China. In this case, the result findings of this research are only meaningful to these three nursing homes and cannot be applied to other counterparts in China. Or, it is also possible that these three nursing homes are too common or generic without any special characteristics of their own and, thus, is not comparable with other nursing homes with unique characteristics. In either case, the findings of this research cannot be

generalized. By increasing the number of nursing homes studied, we can undoubtedly reduce the above-mentioned influence and make the result more universal. As a result, three is the largest number of nursing homes from which the researcher had access to reliable data. With the concern of limitations in mind, the researcher has done his best to reduce the side impact of the number of nursing homes. Firstly, the researcher picked Beijing as the base market, the most mature market of nursing homes in China. And the researcher made the sample pool as large as possible by handing out the questionnaire to 370 people and collected 355 valid answers. Furthermore, the choice of samples took the balance between different gender, age groups, occupation, and income groups into account;

2. *The number of market segmentation criteria*. This research has adopted six criteria to classify consumers into different segmentations or groups. As with the number of nursing homes, increasing the number of criteria used can undoubtedly make this research more applicable and meaningful. But on one hand, adding more criteria in market segmentation would make the analysis process hugely complicated with too many sub-hypotheses; six is a suitable number for analysis. On the other hand, the nursing home market or industry is still a nascent one in China, with many undiscovered and unstudied areas. Not much research has been conducted in this specific market to find out which criteria are important and which are not. That is why this research is an exploratory one trying to act as a foundation for future research to make progress on important criteria of market segmentation in the nursing home market.

The nursing home market in China is still in need of extensive and in-depth research as there exists a lot of blank space in the academic field about the dimensionality of service, classification criteria of important consumer groups, among other open issues. This research is only one first step towards drawing the whole big picture of the nursing home market. Based on the limitations of this research, the researcher hereby lays out a few points of outlook on future research. Most obviously, further research can expand the scope of research either by increasing the number of nursing homes chosen or by studying cases in other parts of China. China is no doubt a very diversified country. People in different places can vary

greatly in temperament, habits, and notions, all of which are crucial to judging service. As a result, it is possible that the same set of service can receive completely different or even opposite reaction from consumers in different regions of China. If so, different regions of China should have different models for judging service quality. For further research, a good start would be going to other parts of China, both rich and poor, with a mature market and nascent market. Only by covering as many places in China as possible can a comprehensive analysis of nursing home service be done in China. In this research, the researcher has adopted six criteria in market segmentation, namely gender, age, nationality, occupation, income, and nursing homes. For future researchers to dig out new ground, introducing new ways of classifying consumers is a good way. Researchers have based the segmentation of markets on various criteria, including cultural, geographic, socioeconomic variables, personality, lifestyle, user status, and usage frequency. Some of these criteria are not adopted in this research but can be adopted in future research. Note that consumer segments based on these criteria may be easy to understand and determine, but may not provide the best possible explanatory power.

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Appendix: Questionnaire

Survey on Service Quality of Nursing Homes

Thank you very much for your participation in the survey on our service quality of nursing homes. The data collected will be kept strictly confidential and used for the purpose of research only. The statistical analysis is based on the overall results of all questionnaires and any individual's data will not be analyzed or evaluated.

Please score the following statements using the scale of 1 to 7 to express your approval degree, with "1" representing "Extremely disagree", "2" representing "Disagree", "3" representing "Partially disagree", "4" representing "Neither agree nor disagree", "5" representing "Partially agree", "6" representing "Agree" and "7" representing "Extremely agree" according to your actual situation.

Standardized presentation

1. The staff of nursing homes dresses appropriately and has neat appearance.	●1●2●3●4●5●6●7
2. The promises of nursing homes are fulfilled at a certain time.	●1●2●3●4●5●6●7
3. The old-age care services are provided timely.	●1●2●3●4●5●6●7
4. The staff of nursing homes will tell me the exact time to provide services.	●1●2●3●4●5●6●7
5. The staff of nursing homes is always ready to help me.	●1●2●3●4●5●6●7
6. The behaviors of the staff of nursing home have brought trust to me.	●1●2●3●4●5●6●7
7. The staff of nursing homes has the knowledge enough to answer my questions.	●1●2●3●4●5●6●7

Interaction

8. The nursing home gives me special attention. ●1●2●3●4●5●6●7

9. The nursing home employees pay personal attention to me. ●1●2●3●4●5●6●7

10. The nursing home can bring me the greatest benefits. ●1●2●3●4●5●6●7

11. The nursing home employees understand my special needs. ●1●2●3●4●5●6●7

Customer satisfaction

12. Generally speaking, I am satisfied with the services of the nursing home. ●1●2●3●4●5●6●7

13. The performance of the nursing home has exceeded my expectations. ●1●2●3●4●5●6●7

14. The performance of the nursing home has exceeded my greatest expectations for the services of the nursing home. ●1●2●3●4●5●6●7

Basic personal information

Name of nursing home where you live: _____

Gender: _____Age: _____

Nationality: _____ Occupation before retirement: _____

Average monthly income: _____yuan

Date of form-filling：____/____/____