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## FACTORS IN RESIDENCE SATISFACTION OF ELDERLY FROM NURSING HOMES: EVIDENCE FROM CHINA

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# Factors in Residence Satisfaction of Elderly from Nursing Homes: Evidence from China

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## Abstract

With the aggravation of population aging, the problem of providing service for the aged has become the focus of the public. A large number of nursing homes have emerged under this background. Residence satisfaction is broadly used as the indicator to measure the quality of nursing homes. Focusing on the resident satisfaction formation from the organizational factors, this study investigate show staffing, hardware facilities, elderly service guarantee and perceived environment influence the satisfaction of the elderly. Meanwhile, how these variables interact with each other and finally affect the satisfaction is also explored. Data collected from 493 nursing homes in Shanghai city of China are used for the empirical analysis. Research results show that: residence satisfaction is directly influenced by the environment perception and elderly service guarantee of the nursing home; staffing and hardware facility configuration are the direct factors in the satisfaction, and staffing is the most important element in the construction of nursing homes and influences other factors directly or indirectly.

*Keywords*: residence satisfaction, functional path, nursing home, SEM, social support, family support.

## Introduction

Aging is a global problem. In recent years, the speed of aging in China has increased, and the problem of aging services has become a hot topic concerned by the whole society. Under this background, a large number of nursing homes for the elderly are springing up. Moreover, the care quality of nursing home residents is

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an ongoing topic of public discussion. Measuring the quality of nursing homes has become a generally accepted practice in many developed countries (Barsanti *et al.*, 2017). The satisfaction of the elderly with nursing homes is a good predictor of the service quality of nursing homes. Related research focused on the factors and tried to find out the key factors to improve the quality of life in nursing homes. Literature showed that personal factors of the elderly, organizational factors (including hardware and software) of nursing homes and other factors such as family support or social support were the main elements determining the resident satisfaction (Maenhout *et al.*, 2019; Alakbarova *et al.*, 2018; Zeng *et al.*, 2018; Tambag & Oz, 2013; Shippee *et al.*, 2017). Most of these studies investigated only one or a few factors and briefly concerned about the relationship between each factor and satisfaction. The relationship among these factors and their influencing paths were not taken into consideration. As a result, this study focuses on satisfaction formation from the perspective of organizational factors, and aims to investigate: (1) how the staffing, hardware facilities, elderly service guarantee and perceived environment of nursing homes influence the resident satisfaction and; (2) how they interact with each other and finally affect the satisfaction. Based on insights from previous studies, this study incorporates a multidimensional set of the factors in order to capture more information of the service quality of nursing homes. This topic would provide management and operational suggestions for nursing homes.

## Literature review

*Residence Satisfaction with Nursing Homes*

Assessing the quality of nursing homes has become a topic of social concerns. The existing research mainly focused on the identification of factors in residence satisfaction. Most of them were based on the data collected from residents in nursing homes. The correlation between the factors and satisfaction was the first indicator applied by them. As for the research on satisfaction, some focused on residents' satisfaction, such as life satisfaction, consumer satisfaction, satisfaction with care and so on (Yoon, 2018; Castle, Engberg, & Men, 2018; Barsanti *et al.*, 2017; Bangerter *et al.*, 2017; Nadash *et al.*, 2019), and others took family satisfaction or social satisfaction into consideration (Shippee*et al.*, 2017; Maenhout *et al*., 2019).

Residence satisfaction or life satisfaction is the reflection of comprehensive quality of nursing homes. Research on the factors could help improve the service quality. Research showed that the factors were complex. For example, Zhang, Huang, & Yin (2011) found out that attitudes of nursing staff, living care and rehabilitation guidance significantly influenced satisfaction, and the elderly had a high demand for psychological care. Tang *et al.* (2016) pointed out fee, living conditions, hygienic conditions, living care, medical and health facilities, psychological counseling services and nursing services as the key factors impacting

satisfaction. Jiang & Huang (2016) indicated that education background, living loneliness, family support, self-care ability, fee and check-in time significantly affected the satisfaction. Zeng *et al.*(2018) explained that gender, age, education background, ADL, self-assessment on health, frequency of meeting with families, and trust to nursing homes were the factors in life satisfaction. Other relevant research also revealed that factors such as psycho education, environment, resident quality of life, facility characteristics, staff-related aspects, residents' perceived choice, functional fitness of resident would impact satisfaction (Tambag & Oz, 2013; Shippee *et al.*, 2017; Barsanti *et al.*, 2017; Bangerter *et al.*, 2017; Kupcewicz *et al.*, 2016).

It is not difficult to find out that the factors in the existing research mainly centered on the following aspects: (1) elderly related personal factors such as sociodemographic characteristics (age, gender, education, marital status, etc.), physical functioning, health status and so on (Maenhout *et al.*, 2019; Jiang & Huang, 2018; Zeng *et al.*, 2018), (2) organizational factors including hardware and software, such as environment, employed staff, medical and health facilities, hardware facility, elderly health services and so on (Tang *et al.*, 2016; Maenhout *et al.*, 2019;Tambag *et al.*, 2013; Alakbarova *et al.*, 2018), and (3) family related factors, such as family support, frequency of meeting with families, etc. (Jiang & Huang, 2016; Zeng *et al.*, 2018). Among them, organizational factors attracted lots of attention in satisfaction study, but most of them only concentrated on the co-relationship between a single factor and satisfaction. In future research, the relationship between factors and their impact paths on satisfaction should be highly focused on.

## Research Hypothesis

Employed staff (e.g. physicians, nurses and other health professionals) is one of the organizational factors in the quality of life and satisfaction in nursing homes (Maenhout *et al.*, 2019). For example, nursing staff plays an important role in the elderly daily life, and staff-related aspects of care are put in the first place in the optimization of quality, such as technical skill and knowledge (Barsanti *et al.*, 2017). Thus, it can be seen that staffing quality is one of the factors in resident satisfaction directly or indirectly. There is no doubt that the quality of staff is the most important force in the construction of nursing homes. They are not only the service providers, but also the builders of the institutions. The top-manager team decides which hardware facilities should be put in the first place and what kind of environment should be built. They are also the designers of service systems, and the promoters of service quality improvement. Physicians, nurses，caregivers and other health professionals in nursing homes are all the contributors to good internal environment and high quality service guarantee. Accordingly, the following hypotheses are put forward:

*Hypothesis 1*: Staffing quality of nursing homes has a significantly positive impact on the construction level of its hardware facilities.

*Hypothesis 2*: Staffing quality of nursing homes has a significantly positive impact on the environment perception of institution.

*Hypothesis 3*: Staffing quality of nursing homes has a significantly positive impact on the satisfaction of the elderly residents in institution.

*Hypothesis 4*: Staffing quality of nursing homes has a significantly positive impact on the level of elderly service guarantee.

Hardware facilities are the guarantee of high quality service. On one hand, hardware facilities in nursing homes form the physical environment, which are beneficial for the residents' daily life and well-being (De Boer *et al.*, 2018). On the other hand, by using the physical environment, the nursing home can provide various facilities and services in supporting person-centered care. As a result, hardware facilities construction of a nursing home can also influence the residents' life satisfaction. For example, Shippee *et al.* (2017) found out that facility characteristics played a strong role in satisfaction. In this case, the following hypotheses are proposed:

*Hypothesis 5*: Hardware facilities construction has a significantly positive impact on the level of elderly service guarantee.

*Hypothesis 6*: Hardware facilities construction has a significantly positive impact on environment perception.

*Hypothesis 7*: Hardware facilities construction has a significantly positive impact on the satisfaction of elderly residents in the institution.

Hardware facilities are the visible factors, but they might be not the direct factors in resident satisfaction. The perceived environment or other software such as various kinds of service guarantee might play an important role in affecting satisfaction. For example, higher levels of nursing home environment have a significantly direct relationship with life satisfaction of residents (Yoon, 2018). Environment such as living conditions and hygienic conditions are the key factors in satisfaction (Tang *et al.*, 2016). Nursing homes' health workers should promote psychoeducation to significantly increase the life satisfaction of the elderly (Tambag *et al.*, 2013). Elderly service guarantee can provide old adults with more choices and is a fundamental step toward increasing resident satisfaction with nursing home care (Bangerter *et al.*, 2017). At the same time, various kinds of elderly service, especially the professional medical care, psychological consulting service, and health education for old adults are the basis for good quality of life. Consequently, the following hypotheses are proposed.

*Hypothesis 8*: Environment perception has a significantly positive impact on the satisfaction of elderly residents in the institution.

*Hypothesis 9*: Elderly service guarantee has a significantly positive impact on the satisfaction of elderly residents in the institution.

# Research design and method

*Variables and Measurements*

According to the research model, there are five variables in this study, including staffing, hardware facility configuration, elderly service guarantee, environmental perception and residence satisfaction. In these variables, hardware facility configuration measures the service quality of nursing homes from the perspective of hardware. Staffing, elderly service guarantee, and environment perception measure service quality from the perspective of software.

(1) *Staffing*. This variable measures the condition of all the staff configures in one nursing home, including overall situation of the staff, the configuration of managers, medical staff and caregivers. Both the quantitative data and qualitative data are collected, e.g. ratio of total number of staff to beds, education background of managers, title and education of doctors and nurses, education and age structure of caregivers, etc.

(2) *Hardware Facility Configuration*. This variable measures the allocation of various houses, facilities and service equipment in nursing homes, including housing allocation, supporting equipment allocation, public activity housing allocation, management services housing allocation, integrated hardware allocation and so on. For example, supporting equipment allocation takes various kinds of equipment into consideration, such as nursing equipment, rehabilitation equipment, and aging training equipment and so on. Integrated hardware allocation includes intelligent equipment, firefighting equipment, security equipment, etc.

(3) *Environment Perception*. This variable is a comprehensive measurement of indoor and outdoor environment perception of nursing homes. Outdoor environment assessment includes the proportion of garden area, various signs setting, barrier-free facilities, outdoor sensory environment assessment, etc. Indoor environment evaluation includes living room environment perception, bathroom environment perception and so on.

(4) *Elderly Service Guarantee*. This variable measures the internal management and professional elderly services provided by institutions. Internal management includes training management of employees, management systems and the insurance purchased for the elderly. Providing services include the completeness of service items, types of elderly care service, psychological support services, cultural and entertainment service, health education and so on.

(5) *Residence Satisfaction*. The elderly residents' perception of hardware configuration, daily life service, entertainment service, medical service, psychological support service and overall satisfaction are collected for residence satisfaction evaluation. Sampling survey is used for collecting the data, and 20% of the elderly living in each nursing home is investigated. The survey data of the elderly in each nursing home are averaged as the final satisfaction data.

*Research Sample and Data*

Field investigation is used for collecting data. The survey is conducted throughout Shanghai city in China. According to the data of Shanghai Civil Affairs Bureau, there are 703 nursing homes or facilities distributing in 16 administrative districts of the city. 560 of them are surveyed in this study, and 493 valid sample data are obtained. Statistical results show that 92.1% of the valid samples are non-profit ones and the rest are for-profit ones. In terms of the nature of nursing homes, public institutions account for 35.9%, private institutions account for 46.5%, public-private institutions account for 15.4%, and others such as foreign-owned institutions account for 2.2%. Public-private institutions are invested and owned by the government, but are operated and managed by the private capital. In terms of operating time, 68.2% are founded after the year of 2000.

*Analysis Method*

Structural equation modeling (SEM) is applied to calculate the data by the software of Analysis of Moment Structures (AMOS). Maximum Likelihood (ML) is applied in this study to do the estimation.

# Results

*Model Fit Test by SEM*

According to the research model proposed above, the structural equation modeling method is used for analyzing the data, and AMOS 19.0 is applied to calculate the model. The fitting results of the model show $\chi^2/df = \chi^2/df = 1.891$, $p<0.01$, RMR=0.01, GFI=0.926, NFI=0.916, RFI=0.901, IFI=0.959, CFI=0.958, RMSEA=0.043. The above results indicate that the model fitting results are good, and the results can be used for the empirical test. The results of the overall model are shown in *Figure 1*.
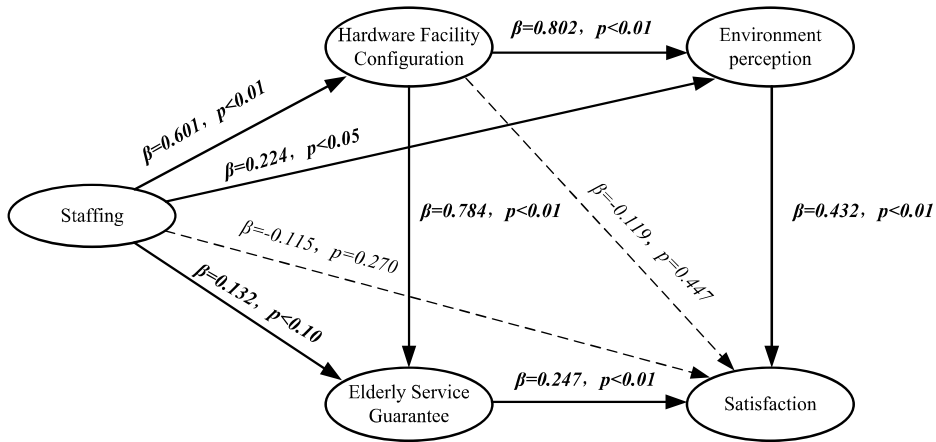
*Figure 1.* Results of the Overall Model by SEM

## Hypothesis Test and Analysis

The results indicate that staffing has a significant positive impact on hardware facility configuration ($\beta$=0.601, $p<0.01$), elderly service guarantee ($\beta$=0.132, $p<0.10$) and environment perception ($\beta$=0.224, $p<0.05$), while the direct impact of staffing on residence satisfaction is non-significant ($\beta$=-0.115, $p>0.10$). Hypothesis 1, hypothesis 2, and hypothesis 4 are therefore supported, but hypothesis 3 is unsupported.

Hardware facility is important to nursing homes and would significantly influence the environment perception ($\beta$=0.802, $p<0.01$) and elderly service guarantee ($\beta$=0.784, $p<0.01$). The direct effect of hardware facility on residence satisfaction ($\beta$=-0.119, $p>0.10$) is not found. As a result, hypothesis 5 and hypothesis 6 are supported, but hypothesis 7 is unsupported.

Environment perception ($\beta$=0.432, $p<0.01$) and elderly service guarantee ($\beta$=0.247, $p<0.01$) both significantly influence residence satisfaction. Accordingly, hypothesis 8 and hypothesis 9 are supported. The hypothesis test results are listed in *Table 1*.

*Table 1.* Hypothesis Test Results

|  | Hypothesis | Estimation (standardized) | P | Test result |
|---|---|---|---|---|
| H1 | Staffing—→ Hardwar facility configuration | 0.601 | 0.000 | Supported |
| H2 | Staffing—→ Environment perception | 0.224 | 0.048 | Supported |
| H3 | Staffing—→ Satisfaction | -0.115 | 0.270 | Unsupported |
| H4 | Staffing—→ Elderly service guarantee | 0.132 | 0.093 | Supported |
| H5 | Hardwar facility configuration —→ Elderly service guarantee | 0.784 | 0.000 | Supported |
| H6 | Hardwar facility configuration —→ Environment perception | 0.802 | 0.000 | Supported |
| H7 | Hardwar facility configuration —→ Satisfaction | -0.119 | 0.477 | Unsupported |
| H8 | Environment perception —→ Satisfaction | 0.432 | 0.000 | Supported |
| H9 | Elderly service guarantee —→ Satisfaction | 0.247 | 0.006 | Supported |

As shown in *Figure 1*, results of the overall model fitting display that residence satisfaction is  directly influenced by environment perception and elderly service guarantee, and other factors indirectly affect  it. In other words, old adults' feelings of the whole environment and service guarantee are  the most important factors in  satisfaction. As for staffing and hardware facility, they have no direct impact on satisfaction, but have an  indirect effect on satisfaction through influencing environment perception and elderly service guarantee. Personnel allocation is the most critical factor in  the service quality of nursing homes. Only by owing a high-quality staff can it do a good job in hardware construction, service guarantee, environment build and so on.

# Conclusion

Staffing, hardware facility, elderly service guarantee and environment are the key factors in  old adults' residence satisfaction with  nursing homes. This paper proposes  a model of their relationships with residence satisfaction. An  empirical analysis is  made based on the data from 493 nursing homes in Shanghai city in China. The research results reveal the  following. (1) Residence satisfaction is directly influenced by the environment perception and elderly service guarantee of nursing homes. (2) Staffing and hardware facility configuration are  the indirect factors in satisfaction. By affecting the environment perception and elderly service guarantee, they influence satisfaction indirectly, and both paths are significant. (3) Staffing is the most important element in the construction of nursing homes and determines the level of hardware and software construction. It also ultimately influences service quality and satisfaction of the elderly living in nursing homes.

*Suggestions*

From the results and findings shown above, practical suggestions are proposed as following:

(1) Work team construction should be put in the first place in building nursing homes. In work team, the proportion of different types of personnel, the number of high-level managers, medical and nursing personnel, caregiver, etc., are the key issues which should be paid attention to in the process of staffing.

(2) Managers should focus on the improvement of perceived environment of nursing homes, as it affects the residence satisfaction significantly. Managers should realize that environment construction is not only a visible environment improvement, but also an environment creation suits for aging living from all aspects.

(3). The nursing home should provide professional elderly service, but not just the simple living care. At present, the vast majority of nursing homes are insufficient to supply professional elderly services. Services such as elderly medical and nursing, elderly psychological counseling, health education for the aged, etc., should be widely promoted.

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