

Improving the Quality of Senior Care Based on the Rating of Guilin Pension Institutions

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Abstract: The problem of population aging poses new challenges to the quality improvement and quality maintenance of the pension institution. The purpose of this study is to provide ideas for improving the service quality of senior care by analyzing the existing rating reports of the pension institution in Guilin. Since 2018, a rating system for pension institution has been established in various parts of China. These 1-5 star evaluation standards similar to hotel ratings have greatly improved the service quality of Pension institution. This study found that based on the current rating results of the pension institution in Guilin, combined with some of the characteristics of the pension institution themselves, and using traditional text mining and statistical analysis methods can help a pension institution improve their own ratings. Current statistics find that the higher ratings of pension institution have a lot to do with their own asset size, affiliation, time of establishment, geographical factors, and regulatory agencies. The results of this study can be used to improve the rating of Guilin pension institutions.

Keywords: Pension institutions; Quality of senior care; Rating

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1. Introduction

The aging of the population has brought new challenges and requirements to pension institutions ^[1,2]. In recent years, China has begun to establish a rating system for pension institutions ^[3]. Many countries in the world have established an evaluation mechanism for the quality of pension institutions. The typical example is the quality evaluation mechanism for aged care homes established in Australia and New Zealand, which supervise the senior care by regularly assessing whether they meet the evaluation standards ^[1]. At present, China has implemented a 1-5 star rating standard similar to the hotel evaluation system since 2018, and the local civil affairs department evaluates the senior care service in the jurisdiction ^[4]. Therefore, the existing Guilin pension institutions have a need to improve the evaluation level, and related research on strengthening their own management and improving the rating level are important problems.

1.1. Senior care service and evaluation system

As the importance of China's pension institutions continues to increase, China implemented a pilot evaluation system for pension institutions in 2018 ^[4]. China's local civil affairs bureau registered pension institutions have all received corresponding stars ^[4]. However, the quality management of large-scale pension institutions is complex and volatile, and it is difficult for the existing rating supervision methods to refine the specific work details ^[1, 3-5]. Moreover, the evaluation report also shows that it is difficult for small pension institutions to obtain the medical and financial resources of large pension institutions ^[1].

Therefore, how to help those aged care organizations with insufficient resources and strength to obtain higher ratings by optimizing their own management system for pension organizations within the existing evaluation systems has become a topic of concern [6,7]. The impact of the epidemic has also brought brand-new challenges to the services of pension institutions [8-10]. The human resources for pension institutions are generally insufficient [1]. The above-mentioned problems require pension organizations to complete the adaptive transformation as soon as possible, upgrade the star rating, optimize the service level, and adapt to the needs of the aging population.

1.2. Rating for pension institution

The service quality of elder care has a strong association with the development of current pension institutions' assessment levels. Although the number of the elderly who are actually sent to pension facilities is not very great, pension institutions frequently deal with old people who have lost their wits and capacity to move [1-3]. Insufficient funding and staff have also hampered the upgrading of pension institutions' ratings [11]. Australia's quality evaluation system is based on qualified and unqualified personnel, and it does not place a premium on the quality of elderly service [1,7]. Other developed nations' scores are likewise based on the same assumption [1,2]. However, China's 2018 rating standards for pension institutions have established the differences in the quality of service institutions.

This research uses certain data from Guilin pension institutions in a narrow range to enhance the evaluations of pension institutions as the research object as a branch of future large-scale research. He assessed the study methodologies utilising statistics, text mining, and association rule analysis, as well as data from relevant pension institutions published on the Civil Affairs Bureau's official website. The goal is to determine the regular substance of existing pension institution evaluations and to investigate the key to higher pension institution ratings.

2. Methods

We use a four-step process to extract and analyze data from the rating data of Guilin elderly service institutions: (1) data source and processing; (2) data analysis; (3) data labeling; and (4) data presentation (**Figure 1**).

2.1. Data sourcing and processing

Our original data comes from the website of Guilin Civil Affairs Bureau. After downloading the rating data of Guilin pension institutions before October 2020, there are only 52 registered pension institutions. We conduct statistical analysis on the nature, beds, region, and personnel of the pension institutions mentioned in the data.

2.2. Data analysis

In order to better find the regularity of these rating data, we imported these data into the database, used Weka3.6 software to mine association rules, and used statistical software SPSS2.1 to try to verify the hypothesis if the rating level is subject to factors such as the attribution of the institution, the per capita living area, and the per capita area of the institution.

2.3. Data annotation

For the data listed in the above data analysis, we will label and look for regular information. This information includes the relationship between ratings and the size of the organization, the relationship

between ratings and the affiliation of the organization, and the relationship between ratings and the size of the organization.

2.4. Data analysis

After matching through traditional statistical analysis and association rules, the rating system and the characteristics of the institution itself are gradually revealed. At the same time, we can analyze the relationship between the rating level and its own attributes in combination with the information disclosed on the Internet about the institution.

Regarding the problems exposed in the research, we interpret the data based on publicly available online materials. The research team used group discussions to summarize the exposed problems, and try to summarize the factors affecting the rating.

Finally, we summarized the key factors restricting the improvement of ratings and the commonalities that Guilin pension institutions are currently facing and recorded these results in the research report.

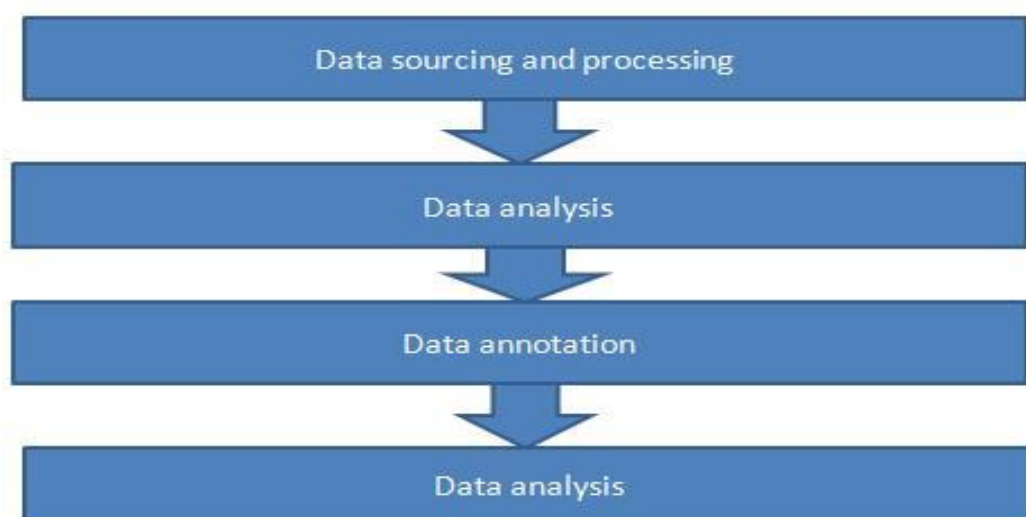


Figure 1. Four-step process to extract and analyze data

3. Results

3.1. Guilin pension institutions' characteristics

By analyzing the ratings of 52 pension institutions, we found that, except for one nursing home and one nursing home, all are elderly apartments. The proportion of publicly-run private surplus is relatively small, and most of the pension apartments are privately-run. At present, except for the five-star Guilin Xiyanghong pension Centre, other pension institutions are rated three-star and below.

The rating standard for pension institutions is a full score of 1,000 points, including 120 points for the environment, 130 points for facilities and equipment, 150 points for operation and management, and 600 points for service. According to regulations, it is evaluated as three levels; the total score is not less than 780 points, and the score of each sub-item is not less than 80% of the total score of the item. This evaluation standard shows that the scores of most pension institutions in Guilin are below 780 points. (**Table 1** and **Figure 2**).

The full score is 1000 points

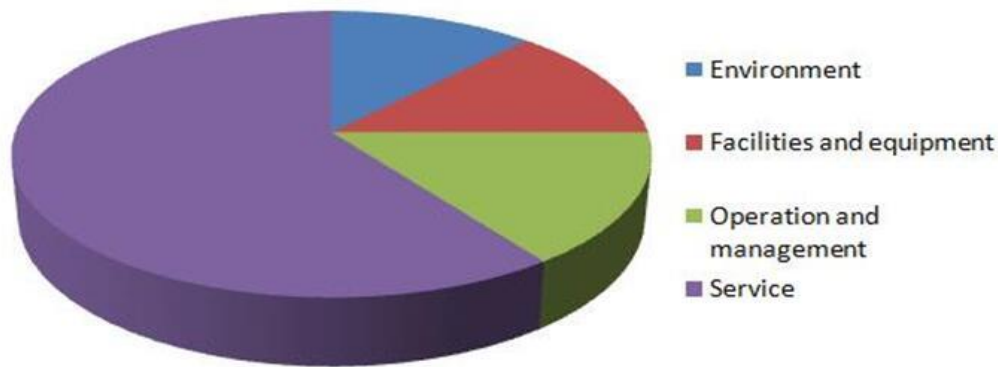


Figure 2. Senior care score for pension institutions

Table 1. Guilin pension institutions' characteristics

Agency star	Per capita area (m ²)	Building area per capita (m ²)	Average beds per institutions	Number of institutions
1	23.08	44.15	109.57	14
2	23.14	45.82	101.26	26
3	22.87	38	164.90	11
4	0	0	0	0
5	125.06	10.29	800	1

3.2. The main problems of Guilin's pension institutions in upgrading the rating

We discovered that if Guilin pension institutions want to improve their scores of 120 points for the environment, 130 points for facilities and equipment, 150 points for operation and management, and 600 points for service, they must combine the above data analysis with association rule analysis and data statistical analysis. grade. The rating results of the third, fourth, and fifth-level pension institutions, on the other hand, are the responsibility of the provincial senior care institution rating committee, which is made up of staff from civil affairs, health, emergency management, market supervision, fire rescue, and other departments, as well as professional and technical personnel. To put it another way, if you wish to get a pension institution's rating above the second level, you'll require a provincial rating. According to research, some pension institutions are having difficulty obtaining certifications above Level 3 using existing hardware settings and operating mechanisms. Data study revealed that certain small-scale pension organizations can also get a three-star rating.

Table 2. Advantages of public pension institutions in Guilin

Types	Per capita area (m ²)	Building area per capita (m ²)	Average beds per institutions
Public	204.71	47.86	130
Public and private operations	38.37	27.80	100.19
Private operations	25.36	20.36	144.65

We also found that pension institutions can obtain relatively high-quality evaluations and ratings by earnestly improving their own service quality, optimizing infrastructure, and finding their own loopholes, under the premise that their scale and ownership are not dominant. Improving the rating level is closely

related to the service quality of the pension institutions themselves. Pension institutions can also gain an advantage in the rating work by looking for their own improvement opportunities and referring to the service quality of other pension institutions. Of course, it is undeniable that public pension institutions have significant advantages in terms of per capita living area and per capita area compared to the other two similar types of pension institutions (**Table 2**).

4. Discussion

We initially found that it is not easy for pension institutions to obtain a four-star rating or more. Of course, this has a lot to do with China's existing evaluation mechanism. The current data can hardly prove that smaller pension institutions can obtain better ratings. This requires pension organizations to work harder to improve their own service quality.

Since the implementation of the rating system for pension institutions in China in 2018, only a small part of the registered pension institutions in Guilin have completed the rating, and most of them are elderly apartments. However, the data on the pension rating shows that Guilin currently lacks more five-star or above pension service institutions to improve the service quality of the overall pension service industry. Moreover, the current three-star or above pension institutions are evaluated by the autonomous region. If they want to obtain this rating, the pension institutions must be based on adequate service quality.

The advantage of this research lies in the use of existing public data, the use of association rules, and statistical analysis of data, combined with the current domestic evaluation standards for pension institutions, to quickly show the main problems facing Guilin's pension industry. The research data has guiding significance for the Guilin pension industry to improve its own service quality.

The limitation of this study is that it only uses the basic data of 52 pension institutions in Guilin, which does not represent the pension organizations in other cities in the province. In addition, there is a lack of on-site surveys, and it is difficult for second-hand data to reflect actual problems.

5. Conclusion

The purpose of this study is to analyze the rating reports of 52 Guilin pension institutions in 2020 and use the methods of association rule analysis and statistical analysis to compare the main rating data faced by pension institutions. We have found that it is difficult for Guilin pension institutions to obtain a four-star rating or more. At present, quite a number of pension organizations have relatively low service ratings, and there is a space for improvement.

We recommend that the pension industry pay attention to the rating system prescribed by the state, reduce industry risks through various channels, improve service quality, avoid its own deficiencies, and improve the rating level by improving services.

Due to the limitations of time and research methods, we need to further demonstrate the results of the research. Future research will include more on-site investigations to interpret the reasons why it is difficult for Guilin pension institutions to obtain high ratings.

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Disclosure statement

The authors declare no conflict of interest.

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