Scientific and Social Research, 2021, Volume 3, Issue 5
http://journals.innosciencepress.com/index.php/ssr
ISSN Online: 2661-4332

Transforming the Pension Industry Based on Aged Care Quality Reports

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Abstract: With the intensification of population aging, the importance of the pension industry has gradually been reflected. The purpose of this study is to find mainly challenges in the pension industry by analyzing the Australian Aged Care Quality Reports. In recent years, Aged Care Quality reports have played a positive role in improving the service quality of aged care institutions and strengthening risk management. This study found that the risk factors in the aged care quality report are the key factors for the upgrading of the pension industry. With the help of traditional text data analysis and mining methods, we can effectively provide new growth points and breakthrough links for the upgrading of the pension industry. This research found the upgrading of the pension industry in the construction of basic hardware and software facilities, the level of informatization and intelligence, the improvement of the quality of aged care services, the improvement of medical problems, and the training of professionals. The research methods proposed in this study are significant to the upgrading of the current pension industry.

Keywords: Pension industry; Aged Care Quality Reports; Transforming

Publication date: November 2021; ***Online publication:*** November 3, 2021

1. Introduction

Due to its high-risk and low-return characteristics, the pension industry has brought many social problems to many countries in recent years [1-3]. Many countries in the world have a monitoring and supervision mechanism for the pension industry [4-6]. In Australia, aged care homes need to ensure that their service quality matches the 44 expected results required by the government, and regulators regularly conduct evaluations and spot checks of aged care services to determine their service quality [4]. In recent years, with the outbreak of the Covid-19, many problems that are difficult to control have emerged in the pension industry [1-3]. The problems exposed by the pension industry need to be resolved by improving their own intelligence and informatization [7]. It is also necessary to analyze and summarize several focus points for improving industry management from the existing literature [1, 8, 9]. Therefore, based on the text analysis method of the existing aged care quality report, it is the key to upgrade the pension industry to refine the channels and ways that can be used for industrial upgrading and improvement.

1.1. New challenges in the pension industry

With the outbreak of Covid-19, the pension industry in various countries has been severely affected [1-3]. At present, the typical problem of the pension industry is that the traditional supervision model cannot be

continued [1-3]. The epidemic prevention problem of large-scale aged care institutions is particularly prominent, medical resources are in short supply to varying levels, and some aged care institutions even have unmanaged problems [1, 7]. Fortunately, information technology has a certain basis for development, and smart aged care services have developed to a certain extent, and more supervision can be achieved online [4, 7].

How to maintain the normal operation of aged care institutions and ensure the quality of services under the premise that the existing medical and financial resources are insufficient has become a major research direction at present [8-10]. At present, some aged care homes have been unable to obtain sufficient software and hardware upgrades for a long time, the problem of human resource shortages continues to exist, and medical services need a long wait [4, 5]. However, the supervisory agency of aged care has lost the ability to supervise on-site due to the impact of the epidemic. The more and more functions of the aged care institution have begun to be unmanaged, restricted, and neglected [2, 3, 7]. The above problems urgently require aged care agencies and aged care regulatory agencies to realize industrial transformation, abandon those functions that are no longer available, and switch to a low-cost and high-efficiency model [1-3].

1.2. Transformation of aged care services

Under the premise that the existing aged care institutions cannot perform their functions, or have insufficient capacity, or even temporarily lose their functions due to the epidemic, the management of aged care organizations should think about how to provide more aged care services online at home [8-10]. Existing aged care facilities will face difficult maintenance problems due to lack of funds, and the elderly in this round of epidemics are more likely to be infected, which determines that aged care institutions become a high-risk area [4]. In some countries, pension institutions even failed to pay attention to the necessity of industrial transformation [1-3, 8]. Therefore, we need to summarize the methods and methods suitable for institutional transformation based on the quality reports of the existing aged care institutions.

As a part of the future large-scale research, the main purpose of this research is to use small-scale data testing to summarize the breakthrough points in exploring the transformation of the pension industry. It used the mature data analysis and text mining methods in the field, and analyzed the data from the existing comprehensive Aged Care Quality (AACQ) reports. The purpose is to explore and find efficient online solutions to traditional problems by analyzing the past problems of the existing mature data.

2. Methods

We used a four-step process to extract and analyze data from these Australian Aged Care Quality reports:
(1) data sourcing and processing
(2) development, test and usage of a computer program for data extraction
(3) data labelling
(4) data analysis (**Figure 1.**).

2.1. Data sourcing and processing

The original data we sourced from the website of the Australian Aged Care Quality Agency (www.aacqa.gov.au). To rule out the impact of the Covid-19, 2,876 copies of AACQ reports published in the period of between March 8, 2015 and December 31, 2018 were downloaded, all in PDF format and each is about 24 pages long. Comments and recommendations on the 44 expected outcomes was extracted and loaded into an excel table for storage and further analysis. 2,876 records were transferred into text format by name of homes.

2.2. Development, test and usage of a program for data extraction

In order to better obtain data on the transformation of aged care institutions, we used the failed part of the AACQ reports as the research object. We have developed an automated extraction tool that can automatically extract failed family names, failed projects, and failed specific information. According to previous studies, the failure cases in AACQ reports often represent typical problems of the real system, the main aspects that need improvement, and the direction of future institutional adjustments. The specific research process can refer to **Figure 1**.

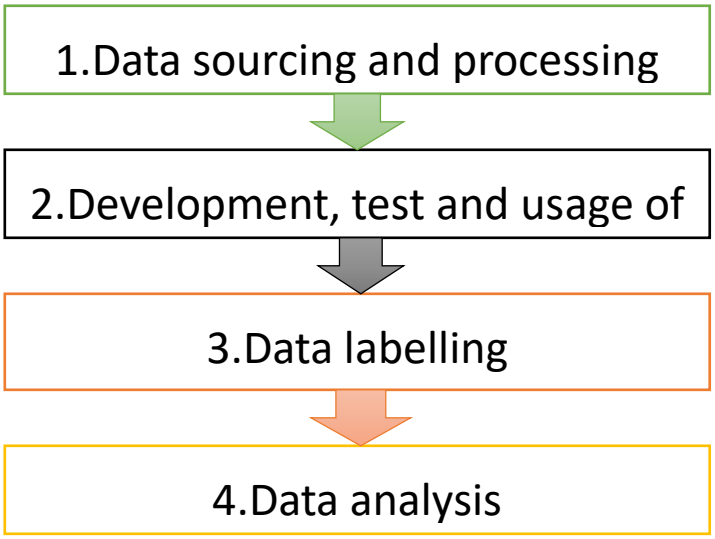

Figure 1. Four-step of transforming the pension industry

2.3. Data labelling

Based on the needs of industrial entrepreneurship transformation, we classify the typical failure cases we have received, focusing on failed homes, failed projects, and reasons for failure. And make an in-depth interpretation of the reasons to obtain data on possible industrial transformation.

2.4. Data analysis

In the homes that have failed through text mining software, we will count the proportion of their failures and the most common reasons for failure. Use association rules to analyze the cause of failure, if there is a certain relationship between the existing data. At the same time, we will classify and summarize the most common causes of failures.

For the problems exposed in the reports, we will use text mining tools to focus on the problematic parts, and adopt the author group discussion method to summarize the exposed problems, and we try to summarize the common reasons for failure, and then provide for the upgrading of the pension industry as constructive suggestions.

Finally, we summarized the commonalities exposed by different test items. The reasons for the failure may come from different projects, but they collectively revolve around a theme that affects the pension industry. These exposed problems were matched and summarized, and recorded in the research results section.

3. Results

3.1. Failures and changes for transforming

There were not as many failed homes as expected. Only 121 failed at least one item, and they failed in 698

outcomes in total. The ratio was 4.2%. Only 1.5 Planning and leadership failed in one of the 44 projects used for evaluation (**Table 1.** and **Figure 2.**).

Typical failures recorded were 1.6 Human resource management 62 homes, 1.8 Information systems 44 homes, and 2.4 Clinical care 52 homes. 2.8 Pain management, 3.6 Privacy and dignity and 4.4 Living environment have also failed in more than 30 homes.

Table 1. Reasons for failing in AACQ reports.

No.	Top six reasons for failures.	Percentage in all failed outcomes (%)
1	1.6 Human resource management.	8.8%
2	2.4 Clinical care.	7.4%
3	1.8 Information systems.	6.3%
4	2.7 Medication management	5.4%
5	4.4 Living environment.	4.6%
6	2.13 Behavioural management	4.4%

It is worth noting that long before the epidemic, 12 out of 2,876 homes had problems with 4.7 Infection control. The Infection control related '4.8 The failure of Catering, cleaning and laundry' services also appeared in 25 homes.

3.2. Trends in the pension industry

Through the above analysis, we found that the services provided by the aged care services must meet the following basic needs. Within the philosophy and level of care offered in the residential care service, management systems are responsive to the needs of residents, their representatives, staff and stakeholders, and the changing environment in which the service operates. Residents' physical and mental health will be promoted and achieved at the optimum level in partnership between each resident (or his or her representative) and the health care team. Residents retain their personal, civic, legal and consumer rights, and are assisted to achieve active control of their own lives within the residential care service and in the community. Residents live in a safe and comfortable environment that ensures the quality of life and welfare of residents, staff and visitors.

Standard 2: Health and personal care

Principle:
Residents' physical and mental health will be promoted and achieved at the optimum level in partnership between each resident (or his or her representative) and the health care team.

Expected outcome		Accreditation Agency decision
2.1	Continuous improvement	Not met
2.2	Regulatory compliance	Met
2.3	Education and staff development	Met
2.4	Clinical care	Not met
2.5	Specialised nursing care needs	Not met
2.6	Other health and related services	Met
2.7	Medication management	Not met
2.8	Pain management	Not met
2.9	Palliative care	Met
2.10	Nutrition and hydration	Not met
2.11	Skin care	Not met
2.12	Continence management	Not met
2.13	Behavioural management	Met
2.14	Mobility, dexterity and rehabilitation	Met
2.15	Oral and dental care	Met
2.16	Sensory loss	Met
2.17	Sleep	Met

Figure 2. Failed in 44 expected outcomes.

We found that the problems of aged care institutions often provide opportunities for industrial upgrading (**Figure 2**). At present, the biggest problems facing the aged care services are often the prevention and control of infectious diseases and cleaning problems. Then, before the outbreak of the epidemic, the main challenges were infrastructure construction and information technology. Of course, human resource management, clinical nursing, and pain management are also emphasized by managers. Although the quality of services has been repeatedly emphasized before, in the context of the raging epidemic abroad, how to maintain the operation of aged care services at a minimum cost has become a major issue, and it is necessary to ensure that the prevention and control of infectious diseases adhere to a relatively high standard.

4. Discussion

Our preliminary research found that in the past, the pension industry paid more attention to the improvement of its own hardware and software facilities. Of course, the management of human resources is also an important link. We found that the prevention and control of infectious diseases and cleaning problems have appeared before the outbreak, and some homes have been in a state of disqualification.

Since most of the data were collected before the epidemic, the evaluation work of aged care institutions during the epidemic was greatly affected, so the data in this study may have certain limitations. However, this data still reflects some development directions of aged care institutions and even the entire pension industry, such as improving their own service quality and informatization level. However, the data before the epidemic still shows that a considerable number of homes did not pay attention to the prevention and control of infectious diseases as early as before the epidemic, and did not have relevant response measures, and there were serious problems in the cleaning of related pollutants.

The advantage of this research lies in the use of the complete data collected before the epidemic, starting from the needs of the aged care services, and re-evaluating and analyzing the current transformation path of the pension industry. The data used has hardly been affected by the epidemic, and can better show the development context of aged care institutions.

The limitation is that the data of recent years is not used, so it does not represent the recent development trend. However, in view of the impact of the epidemic, the quality assessment of aged care institutions has been restricted or even terminated to varying degrees. It is difficult for recent data to be representative.

5. Conclusion

The purpose of this study is to analyze 2,876 copies of AACQ reports published in the period of between March 8, 2015 and December 31, 2018, and use this part of the data before the epidemic to derive the key factors for the upgrading of the pension industry. Through data analysis, we found the upgrading of the pension industry on the construction of basic hardware and software facilities, the level of informatization and intelligence, the improvement of the quality of aged care services, the improvement of medical problems, and the training of professionals.

We suggest that the pension industry pays attention to the current mainstream industry upgrade paths and channels. By interpreting the content of the report of risk households, a breakthrough can be found for improvement and promotion.

Due to time and research method constraints, we did not conduct further matching and analysis of related failure factors. This research is only a summary of the main points. Future research will analyze all the details of failures that involve industrial upgrading in more detail.

Funding

Fund Project: Guangxi Bagui Scholars; Reasonable use of existing resources combined with anti-epidemic

work to further enhance teachers' online teaching capabilities (ZZSHJKYXY20001); The Risk Management System for aged care services in Guilin (2021KY0501); 'Big data driven management and decision-making research,' a major NSFC project (91646205); Health Education and Health Promotion (No. 3,2016) , the fourth major public health program in Shanghai; Shanghai Integrated Traditional Chinese and Western Medicine Community Medicine and Health Management Research Project (SQ2)2019. Thanks for Ziwei Dai, and Manting Long (Undergraduate student in 18 Marketing). Thanks for Junru Xu, and Caihong Liang (Undergraduate student in 18 Public Administration). The corresponding author is Tao Jiang

Disclosure statement

The author declares no conflict of interest.

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