

Research on the Demand for Professional Positions in Guangxi Health Management Company

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Abstract: This study analyzes how health service and management students should respond to the job needs of 168 health management companies in Guangxi by studying the current situation of health service and management majors in colleges and universities and investigating the job needs. In this study, Excel software and SPSS 26.0 were used to organize and analyze the relevant recruitment data of health managers by using statistical methods such as descriptive statistics, T-test, chi-square test, decision tree, cluster analysis, classification and summarization, and Apriori algorithm. There was a statistically significant difference in the registered capital of enterprises in the autonomous region ($P < 0.05$), and among enterprises with different registered capitals, the proportion of enterprises with registered capital greater than 10 million yuan providing pre-examination services, communication with medical institutions, and health consulting services was significantly lower than that of enterprises with registered capital of 0-10 million yuan ($P < 0.01$). There was a significant difference in the provision of pre-examination services and the communication between medical institutions ($P < 0.05$). There are many factors affecting the employment of students in Guangxi, and the employment prospects and development of students majoring in health services and management are good.

1. Introduction

With China's economic development and the improvement of people's living standards, the masses are paying more and more attention to their own health. In addition, there is an increasing demand for health managers. The employment background of health service and management in Guangxi shows a positive development trend. The health service and management profession is still in its infancy in China, but the employment prospects are very broad and good^[1-3]. In life, there are many types of health managers, and there are slight differences between the training requirements of various types of health managers, and most of these differences come from the needs of employers for health managers. As the main provider of health management services, the ability of health managers is closely related to the quality of health management services^[4,5]. Therefore, the training of health managers is also very important.

1.1. Specialization in Health Services and Management

In accordance with the strategic development needs of "2030 Healthy China", the major of Health Service and Management is based on management, and has mastered professional knowledge in medicine, nursing, prevention, health care, nutrition and health industry operation^[6]. Students in this major have health management skills such as health information collection and management, health risk detection and assessment, health behaviour intervention and promotion, health consultation and health education, as well as health industry research and management capabilities. Health Service and Management: The discipline of health management started late, and related theoretical research began to appear in the nineties of the twentieth century. In the 21st century, with the rapid development of society, the change of disease spectrum, the support of national policies, and the increase of people's awareness of health, the vigorous development of the health industry has been promoted, and the discipline of health management has also made great progress^[11]. Health services include assessing people's health status, providing guidance on lifestyle, diet, exercise, smoking cessation, alcohol cessation and other lifestyle habits, as well as helping people improve their physical health and quality of life.

1.2. The health management company and his job requirements

A health management company is a for-profit enterprise with the goal of "health management", which comprehensively manages the health risk factors of individuals or groups of people, and its purpose is to mobilize the enthusiasm of individuals and collectives, and effectively use limited resources to achieve maximum health results^[7]. The employment background of health service and management in Guangxi shows a positive development trend. The health service and management profession is still in its infancy in China, but the employment prospects are very broad^[3,5,7]. According to the results of the employment positions of health management companies in Guangxi, the requirements for students majoring in health service and management are mainly to carry out chronic disease management, fat loss and muscle gain, health education, beauty and so on. Therefore, the training direction of health service and management in colleges and universities in Guangxi should be developed in this direction^[1]. The business scope of the health management company mainly includes the following aspects: 1. health consultation and evaluation, 2. health intervention and management plan, 3. medical services and health care services, 4. health product sales^[12].

In the face of the increasingly severe trend of population aging and the younger prevalence of chronic diseases, it is increasingly important to implement the Healthy China Action and actively promote the transformation from "treatment-centered" to "people's health-centered", and strengthen health management^[8]. The research object of this paper is the job demand of health service management related companies in Guangxi, and the research scope is in Guangxi.

2. Methods

We followed a four-step process to extract and analyse data from the accreditation reports: (1) data sourcing and processing, (2) data extraction, (3) data labelling, and (4) data analysis.

2.1. Data sourcing and processing

In order to gain an in-depth understanding of the employment market of graduates majoring in health service and management in Guangxi, this study adopted a multi-dimensional survey method from March 10 to March 18, focusing on well-known domestic recruitment platforms, such as BOSS Zhipin, 58.com, Zhaopin (Zhaopin.com), Future 51job.com Care, Lagou.com (Lagou.com), Liepin

(Liepin.com), LinkedIn conducted detailed data collection and analysis. By screening the recruitment information related to health and service management positions in Guangxi, this study aims to reveal the demand for this profession in the local job market, the supply and demand of talents, and the development trend of the industry.

2.2. Data extraction

This study retrieved and collected the online recruitment information published by health management companies in Guangxi, and analyzed the recruitment needs of health managers based on the company's scale, business scope, geographical location and main business content. The research subjects were 168 health management companies in Guangxi, including health management, medical equipment and comprehensive outpatient services, and the employment positions, work content and recruitment requirements of 168 companies were analyzed in detail, including the distribution of positions in different cities and the talent needs of each health management company, focusing on the specific requirements of the company for the qualifications, number of people in demand, responsibilities, abilities and qualities of health managers.

2.3. Data labelling

The needs of different companies were classified and analyzed, and it was summarized that there were many categories such as chronic disease management, health education, physical abnormal data monitoring, physical examination, communication with medical institutions, health consultation, weight loss, beauty, regular physical condition monitoring, marketing, necessary professional qualification certificates, mother and child, community, food, traditional Chinese medicine, pharmacies and hospitals. This classification is helpful to deeply explore the talent needs of health management enterprises in Guangxi, as well as the employment prospects of health service and management majors, and provide employment directions for fresh graduates^[9,10].

2.4. Data analysis

In order to analyze the data, this study used Excel software and SPSS 26.0, and used statistical methods such as descriptive statistics, T-test, chi-square test, decision tree, cluster analysis, classification and aggregation and Apriori algorithm to sort out and analyze the relevant recruitment data of health managers, so as to provide basic data and analysis support for future graduates to enter these companies according to the actual market needs.

3. Results

3.1. Map of 168 companies in Guangxi

The distribution map of 168 companies in Guangxi that have a demand for health manager positions is shown in Figure 1. As can be seen from Figure 1, there are several health management companies in Guangxi, with many in Guilin, Liuzhou and Nanning.

3.2. Cross-map of cities and chronic disease management in Guangxi

All samples from Guangxi cities showed significant differences in chronic disease management ($P < 0.05$), indicating that there were statistically significant differences in the implementation of chronic disease management between cities. The cross-analysis method (chi-square test) was used to study the independence relationship between cities in Guangxi and chronic disease management, and

the analysis results showed that the differences in chronic disease management in different cities were statistically significant, that is, the chronic disease management in different cities was not independent of each other, but had a certain correlation. These findings are critical for the development of targeted chronic disease management strategies and the allocation of healthcare resources. Textual differences suggest that further research may be needed to identify the specific factors that contribute to these differences in order to more effectively design and implement chronic disease management programs.

In view of the significant differences, future research can delve into the reasons for the differences in chronic disease management among different cities, and how to tailor the appropriate chronic disease management program according to the characteristics of each city.

In conclusion, the results of the chi-square test highlight the differences in chronic disease management in different cities in Guangxi, and provide important data support for public health policymakers to optimize chronic disease management strategies and resource allocation.

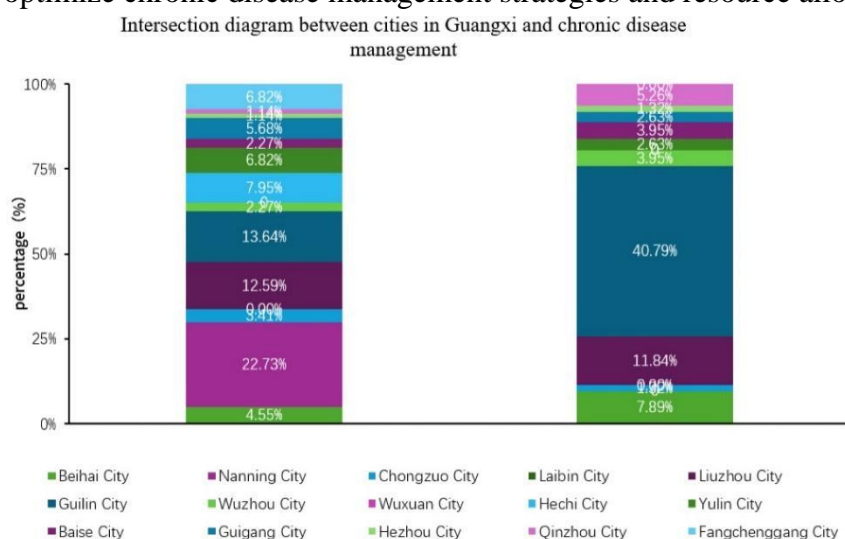


Figure 1: Cross-map of cities and chronic disease management in Guangxi

3.3. Analysis of the demand for health manager positions in different enterprises

In the analysis of the job needs of different health management enterprises, the needs of enterprises are summarized into chronic disease management, health education, physical abnormal data monitoring, physical examination, communication with medical institutions, health consultation, weight loss, beauty, regular monitoring of physical condition, marketing, necessary vocational qualification certificates, mother and child, community, food, traditional Chinese medicine, pharmacies, and hospital recruitment. The second is regular monitoring of physical condition and tracking of abnormal physical data, and some health management companies need to have a health manager certificate.

3.4. The results of the T test and analysis of each position

Using the t-test (full name is independent sample (test) to study the differences between the five items of physical examination, chronic disease management, communication with medical institutions, health consultation, and weight loss, it can be seen from the above table that different popular samples will not show significance ($P > 0.05$) for physical examination, medical institution communication, health consultation, and weight loss, which means that different popular samples all show consistency and no difference in physical examination, medical institution communication,

health consultation, and weight loss. In addition, a total of 1 popular samples showed a significant effect on the management of chronic diseases ($P < 0.05$), which means that different popular samples have differences in chronic disease management. The specific analysis showed that the popularity showed a significance of 0.05 for the management of chronic diseases ($t = -2.138$, $p = 0.046$), and the specific comparison difference showed that the average value of 0.0 (0.33) would be significantly lower than the average value of 1.0 (0.78).

As can be seen from Table 1, it can be seen that there are no significant differences in 4 items of physical examination, communication with medical institutions, health consultation and weight loss, and 1 item of chronic disease management in different popular samples.

Table 1: The results of the T test and analysis of each position

	T-test analysis results [↵]			
	Popular (average ± standard deviation) [↵]		t [↵]	p [↵]
	0.0 (m=12) [↵]	1.0 (n=9) [↵]		
medical check-up [↵]	0.17 ± 0.39 [↵]	0.38 ± 0.52 [↵]	-1.029 [↵]	0.317 [↵]
Chronic disease management [↵]	0.33 ± 0.49 [↵]	0.78 ± 0.44 [↵]	-2.138 [↵]	0.046* [↵]
Healthcare organization communication [↵]	0.33 ± 0.49 [↵]	0.22 ± 0.44 [↵]	0.535 [↵]	0.599 [↵]
Health Consultation [↵]	0.67 ± 0.49 [↵]	0.56 ± 0.53 [↵]	0.497 [↵]	0.625 [↵]
Weight loss category [↵]	0.00 ± 0.00 [↵]	0.11 ± 0.33 [↵]	-1.000 [↵]	0.347 [↵]

* $p < 0.05$ ** $p < 0.01$ [↵]

3.5. The feature weight analysis, decision tree, cluster analysis

The results of feature weight analysis showed that the communication of medical institutions accounted for 44%, which had the highest weight and played a key role in the construction of the model. The proportion of regular monitoring of physical condition was 30.00%, and this feature was the second most important, which played an important role in the construction of the model. The proportion of popular is 26%; the total proportion of the above three characteristics accounts for 100.00%.

The decision tree classification will be online, popular, company name, job title, physical examination, physical abnormality data tracking, chronic disease management, health education, medical institution communication, health consultation, weight loss, beauty, regular monitoring of physical condition, marketing, necessary health manager certificate, selling medicine, community, traditional Chinese medicine, food, mother and child, recruiting unit for the hospital* key marker items as independent variables, and the city in Guangxi as the dependent variable for decision tree modeling, as can be seen from the above table, a total of 12 samples participated in the analysis. Among the 12 samples analyzed, the sample from Liuzhou accounted for 58.33% of the total sample size, followed by Baise with 4 samples accounting for 33.33%, and finally Guilin with only 8.33%.

The clustering group showed a significance (0.0) for all study items, which means that the

characteristics of the three groups obtained by cluster analysis have obvious differences in the characteristics of the study items (cities in Guangxi). There is a significant difference ($p < 0.05$) online, which may be caused by the differences in positioning, service content, user groups and other aspects of each platform. A total of 6 items, including popularity, body conduction data tracking, chronic disease management, communication with medical institutions, regular monitoring of physical condition, and necessary health manager certificate, did not show significant significance ($P > 0.05$), which means that after cluster analysis, there was no significant difference in the characteristics of these 6 items in each cluster category.

4. Discussion

The discipline of health management started late, and related theoretical research began to appear in the nineties of the twentieth century. In the 21st century, with the rapid development of society, the change of disease spectrum, the support of national policies, and the increase of people's awareness of health, the vigorous development of the health industry has been promoted, and the discipline of health management has also made great progress.

The National Standards for the Teaching Quality of Undergraduate Majors in Colleges and Universities issued by the Ministry of Education in 2018 did not put forward quality standards for the training objectives, training specifications, curriculum system, teaching staff, teaching conditions, and quality assurance of the newly opened "Health Service and Management" major. On the whole, although the requirements are consistent with those of public administration majors, the specific cultivation goals and directions of each university are different. Due to the fact that there is still a big gap between the hard resources such as financial, material and information resources of the university, as well as the soft resources such as manpower, management system, development orientation and academic philosophy, and the professional standards of public management stipulated by the Ministry of Education, it may be related to the limited existing resources, insufficient resource utilization efficiency, insufficient prediction of the development of the health industry and short-sightedness of professional construction.

The development level of the health service and management industry in Guangxi is uneven, and the employment needs and treatment of different regions and enterprises vary greatly. This not only provides graduates with a variety of employment options, but also brings pressure to compete for jobs. Therefore, how to cultivate professionals with innovative ability and adaptability is also an important issue facing the professional development of health service and management in Guangxi.

5. Conclusion

This study deeply analyzes the employment needs of health management majors in Guangxi, and its results have a significant impact on education decision-making, students' career planning, health industry development and policy formulation. The results of this study will not only help students of related majors to grasp the distribution and number of health management enterprises in Guangxi, and have an in-depth understanding of market employment needs, but also effectively guide them to adapt to market changes and optimize employment choices. In addition, this study also aims to improve the entrepreneurship rate and innovation ability through industry skills training, so as to improve the quality of education in the field of health service and management, enhance the skill level of professionals and the comprehensive quality of social talents, and play a positive role in promoting the development of the industry and the progress of the times.

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Author contributions

T.J. conceived the idea of the study. T.J. performed the experiments. YK.Z. and T.J. analyzed the data and wrote the paper.

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