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Research on the Smart Service System of Guangxi Internet Hospitals

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Abstract: Based on the existing literature and data, this paper tries to explore the method of building a smart Internet hospital system in Guangxi. By analyzing the literature related to the construction of Internet hospitals in the past five years, collecting and using the literature review method to sort out all types of intelligent services provided by Internet hospitals, testing whether the 34 Internet hospitals in the region have all intelligent services, and combining the construction of intelligent services of Internet hospitals in China, The development of intelligent service of Internet hospitals in Guangxi was studied by the methods of literature research, Chi-square analysis and descriptive analysis. Due to various reasons, the Internet hospitals in the area were not fully equipped with intelligent services, among which about 5% had expert consultation, 32% had medical insurance services, 8% had drug delivery, 18% had electronic prescription, 18% had family doctor services, 50% had convenience services, and 3% had chronic disease management services. It is necessary to improve the intelligent service before, during and after the diagnosis, respond to the requirements of government documents, complement their weaknesses, and build the intelligent service system of Internet application.

1. Introduction

At present, the development of China's medical industry has rapidly entered a new stage, in recent years, in the supply-side structural reform, the mode and mode of medical services have undergone major changes, the medical industry has accelerated the speed of transformation and upgrading, from the traditional medical industry to the modern, high-tech, intelligent direction. With the application of biotechnology and information technology, digital and intelligent medical care has begun to become popular[1-3]. Foreign "Internet + medical" has the characteristics of medical and health database, intelligent triage, medical and elderly care integration and elderly monitoring, and at the same time, it has also established a corresponding guarantee system for health data security and privacy protection[4-5]. Foreign developed countries such as the United States, the United Kingdom, Spain and other countries have applied a variety of new technologies to the construction of smart medical fields when launching smart medical related plans. Under the influence of the new crown epidemic in recent years, the advantages and value of Internet medical services have been recognized again, and at the same time, it has also brought development

opportunities for the medical industry, and it is of great significance to establish smart medical services[3,4,6]. The main application country of "Internet + Healthcare" is the United States, followed by Europe, Africa and Latin American countries, and finally the Asia-Pacific region[1,5].

The smart service of Internet hospital organically combines traditional medical institutions and the Internet, and uses emerging technologies such as Internet platform and artificial intelligence to enable patients to obtain a high-quality medical experience before, during and after diagnosis, and realize the application of smart medical care, smart service and smart management[7-9]. At present, the State Council, the National Health Commission, the National Health Insurance Administration and other departments have issued a series of national core policies related to Internet hospitals, clarifying active policy guidance, and standardizing and leading the development of Internet hospitals. On the basis of informatization, Internet, and Internet of Things construction, China's Internet hospitals have initially realized the 1.0 version of smart services, optimized the medical treatment process, medical process, management system, medical education and scientific research, and rationally allocated medical resources, so that patients can improve their medical experience. There are problems in the smart service level of Internet hospitals in the region that the utilization of medical data is not high and the level of intelligence is low[2-3,5]. At present, many hospitals provide all-in-one machines, mobile phone settlement, online registration and other services, which is a "smart service" for patients, which is also the first stage of smart service. The "smart service" for patients is applied to all aspects of pre-diagnosis, diagnosis and post-diagnosis, which to a certain extent improves the common problems of difficult appointment and long queuing time in the process of medical treatment[4,6].

Compared with physical hospitals, Internet hospitals can rely on the interconnection of medical resources to strengthen remote cooperation with the grassroots and help the development of hierarchical diagnosis and treatment while breaking the limitations of time and space and providing patients with more convenient medical services[3,9]. With the construction of Internet hospitals, the service content will continue to deepen. In the future, Internet hospitals can help offline physical hospitals to relieve the pressure of medical treatment to a certain extent, and at the same time become a health management tool, combined with emerging technologies, to become the user's handheld doctor. Relying on the Internet hospital platform, as an official channel to popularize science to the public, it has become the main battlefield for the popularization of medical knowledge, and coped with the spread of various false medical knowledge in the Internet era[4-6].

This study collects the literature on the construction of smart services in Internet hospitals at home and abroad, combines the construction of Internet hospitals in the region, discusses how to build a smart service system for Internet hospitals in the region from three directions: pre-diagnosis, diagnosis and post-diagnosis process, information exchange and application depth, analyses the shortcomings of the current smart services of Internet hospitals in the region, provides corresponding measures for its construction, builds a higher level of Internet hospitals smart services, realizes the information exchange of Internet hospitals, and constructs "Internet + medical health" in the region system[1,4,7].

2. Methods

2.1. Data sources and case collection

Through the statistics of the types of smart services provided by the official accounts and APPs of the existing 34 Internet hospitals in the region, and comparing the rating standards and guidance of national Internet hospitals, from the 34 Internet hospitals in the region, mainly including 4 secondary hospitals and 30 tertiary hospitals, in order to evaluate the types of smart services provided by the 34 Internet hospitals in the region, the types of smart services are divided into 12

evaluation parameters: appointment registration, online consultation, expert consultation, online payment, medical insurance services, drug delivery, electronic prescription, Electronic files, family doctors, convenient services, chronic disease management, medical science. At the same time, the basic information of the hospitals was recorded, and the types of smart services of Internet hospitals in the region were tested through 12 evaluation parameters, and the level of Internet hospitals was counted to analyze whether the higher the hospitals level, the more and more perfect smart services would be analyzed.

2.2. Data cleaning and case analysis

After the statistics of the smart services supported by the Internet hospitals in the district, it is found that the Internet hospitals in the region have four smart services, including appointment registration, online consultation, electronic files, and medical science popularization, and there are different differences in the application of other smart services.

Smart services such as appointment registration, online consultation, electronic files, and medical science popularization were eliminated, and smart services such as expert consultation, medical insurance services, drug distribution, electronic prescriptions, family doctors, convenience services, and chronic disease services in secondary and tertiary hospitals were analysed.

2.3. Data analysis

The statistical analysis of the smart services of 34 Internet hospitals in the inner district found the main problems and deficiencies in the development of Internet application smart services in the district. Then, based on the data analysis results, the reasons for the incomplete smart services of Internet hospitals in the region were discussed. Finally, it is found that there is a problem of imperfect smart services in the existing scale and environment of Internet hospitals in the region.

3. Result

3.1. Internet hospitals in Guangxi

Through the statistics of the types of smart services provided by the official accounts and APPs of the existing 34 Internet hospitals in the region, and comparing the rating standards and guidance of national Internet hospitals, from the 34 Internet hospitals in the region, mainly including 4 secondary hospitals and 30 tertiary hospitals, in order to evaluate the types of smart services provided by the 34 Internet hospitals in the region, the types of smart services are divided into 12 evaluation parameters: appointment registration, online consultation, expert consultation, online payment, medical insurance services, drug delivery, electronic prescription, Electronic files, family doctors, convenient services, chronic disease management, medical science. At the same time, the basic information of the hospitals was recorded, and the types of smart services of Internet hospitals in the region were tested through 12 evaluation parameters, and the level of Internet hospitals was counted to analyse whether the higher the hospitals level, the more and more perfect smart services would be analysed. Specific analyses are shown in table 1.

Table 1: Internet hospitals services in Guangxi.

Chi-square (cross-)test results					
Medication delivery					
	Value	Freedom	Progressive Significance (Two-Sided)	Precise Significance (Two-Sided)	Precise Significance (One-sided)
Pearson Chi-square	1.475[a]	1	0.225		
Continuity correction b	0.076	1	0.783		
The likelihood ratio	1.099	1	0.294		
Fisher's exact test				0.322	0.322
E-prescribing					
	Value	Freedom	Progressive Significance (Two-Sided)	Precise Significance (Two-Sided)	Precise Significance (One-sided)
Pearson Chi-square	.169[a]	1	0.681		
Continuity correction b	0	1	1		
The likelihood ratio	0.156	1	0.693		
Fisher's exact test				0.559	0.559
Family doctor					
	Value	Freedom	Progressive Significance (Two-Sided)	Precise Significance (Two-Sided)	Precise Significance (One-sided)
Pearson Chi-square	.383[a]	1	0.536		
Continuity correction b	0	1	1		
The likelihood ratio	0.336	1	0.562		
Fisher's exact test				0.488	0.488
Convenient service					
	Value	Freedom	Progressive Significance (Two-Sided)	Precise Significance (Two-Sided)	Precise Significance (One-sided)
Pearson Chi-square	1.133[a]	1	0.287		
Continuity correction b	0.283	1	0.595		
The likelihood ratio	1.18	1	0.277		
Fisher's exact test				0.601	0.301
Chronic disease management					
	Value	Freedom	Progressive Significance (Two-Sided)	Precise Significance (Two-Sided)	Precise Significance (One-sided)
Pearson Chi-square	.137[a]	1	0.711		
Continuity correction b	0	1	1		
The likelihood ratio	0.254	1	0.614		
Fisher's exact test				1	0.882

3.2. Services of Guangxi Internet Hospital

After the statistics of the smart services supported by the Internet hospitals in the district, it is found that the Internet hospitals in the region have four smart services, including appointment registration, online consultation, electronic files, and medical science popularization, and there are different differences in the application of other smart services.

The difference between the five smart services of secondary hospitals and tertiary hospitals, including drug distribution, electronic prescription, family doctor, convenient service, and chronic disease management, can be seen from the chi-square test P value, and it can be seen that different levels of hospitals will not show significant significance for the five smart services supporting drug distribution, electronic prescription, family doctor, convenient service, and chronic disease management (P>0.05), which indicates that different levels of hospitals are consistent with the lack of five smart services of drug distribution, electronic prescription, family doctor, convenient service, and chronic disease management. This is illustrated in figure 1.

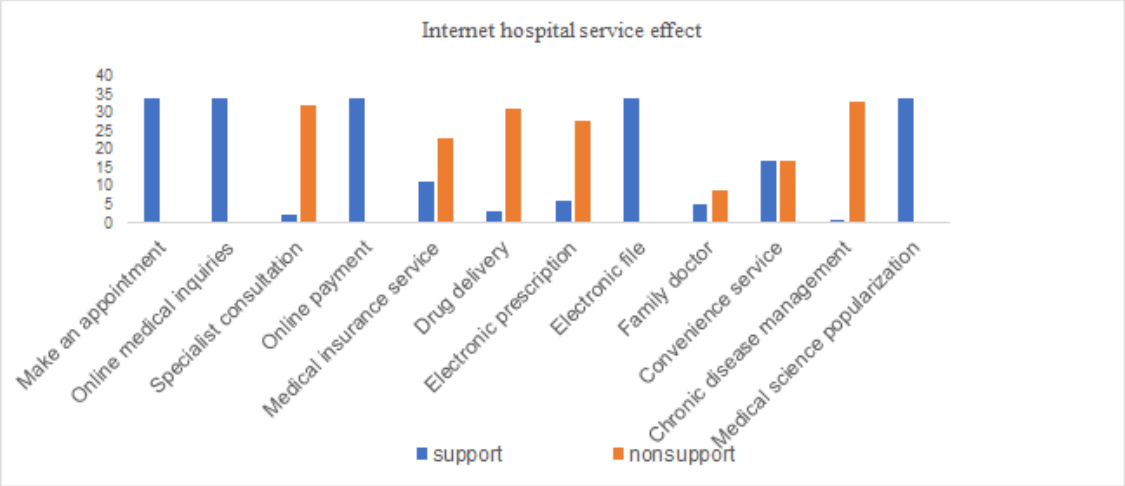

Figure 1: Application of Internet hospitals services in 34 Guangxi provinces.

4. Discussion

The degree of informatization of smart services in Internet hospitals in the region is not high, mainly providing basic functions such as appointment registration, online payment, report inquiry, etc., and there are almost no post-diagnosis smart services[10].

In the context of the epidemic, Internet hospitals can provide efficient and safe diagnosis and treatment, but when the background of the times has changed, Internet hospitals have paid less attention to managing and diverting patients, balancing medical resources, and building brands. Internet hospitals are widely used, but the lack of application depth has always been a pain point.

5. Conclusions

The research idea of this paper is mainly carried out from five steps: research background and significance, research methods and results, discussion, suggestions, and conclusions. Firstly, the research background and significance of smart services in Internet hospitals are introduced, which provides a theoretical basis for the topic. Secondly, the research methods and results adopted in this paper are introduced, and the smart services of 34 Internet hospitals in the inner district are statistically analysed, and the main problems and deficiencies in the development of Internet application smart services in the region are found. Then, based on the data analysis results, the

reasons for the incomplete smart services of Internet hospitals in the region were discussed.

Finally, it is found that there is a problem of imperfect smart services in the existing scale and environment of Internet hospitals in the region. Based on the research results, this paper puts forward countermeasures and suggestions for Internet hospitals in the region to improve their smart service capabilities by responding to policies and building smart services. After analysing the innovations and shortcomings of this paper, the final conclusions are drawn and the future development direction is prospected.

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