Associated factors of health services utilization for patients with chronic diseases in Chengdu, China: an application of Anderson's behavior model

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Background:

Chronic diseases, also known as non-communicable diseases (NCDs), are a global epidemic that refers to a group of conditions that persist over time and progress slowly. They include diseases such as cardiovascular disease, cancer, chronic respiratory disease, and diabetes, which are responsible for the majority of deaths worldwide. Efforts to reduce the burden of chronic diseases include implementing policies and interventions to promote healthy lifestyles, improving access to healthcare, and strengthening health systems. Additionally, there is a need for more research and development to identify new and effective treatments for chronic diseases.

Objective:

To evaluate the current situation of health services utilization of chronic disease patients, and analyze the factors affecting the medical services utilization according to the framework of Andersen's behavior model, so as to provide a reference basis for rational allocation of resources, improvement of the current situation of health services utilization and scientific formulation of health policies.

Methods:

A cross-sectional survey was conducted in a sample of 273 chronic disease patients from three regions in the outer suburbs, inner suburbs and central urban area of Chengdu through Random stratified sampling. The inclusion criteria for participants were 1) aged 18 years and above; 2) able to communicate with investigators; and 3) at least one chronic disease. Data were collected through structured questionnaires. Frequency of doctor visits due to chronic disease in the previous 12 months was determined using self-reported data, and grouped into two categories: <1 visit and ≥1 visit. We constructed health care utilization related variables based on Andersen' behavior model. Univariate analysis and multiple logistic regression were used to analyze the influencing factors of health service utilization of chronic disease patients.

Results:

Population characteristics

A total of 273 patients with chronic diseases were investigated in this study, of which 31% had two chronic comorbidities and 20% had three or more chronic comorbidities. The most common chronic diseases were hypertension (60%), diabetes (26%), coronary heart disease (12%), chronic gastritis (8%) and hyperlipidemia (7%). 265 patients reported their health examination in the past year, of which 87% were elderly (231/265), and 28% reported that they had never had a health examination in the past year (75/265).

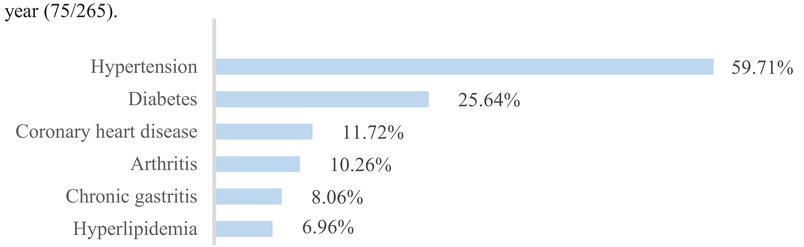

Figure 1. The top six chronic disease types

Associated factors of health services utilization in Univariate Analysis

Univariate analysis showed that the doctor visits made by chronic disease patients was strongly correlated with the regional distribution of family, education, distance between family and medical institution, confidence in disease management and disease stability of patients. Chronic disease patients living in the outer suburbs (76%) and inner suburbs (76%) were more likely to have an annual health checkup (P=0.039) than patients living in the central urban(60%). Patients with low confidence in disease management (75%vs.35%) and stable disease (78%vs.38%) were more likely to visit their doctor more frequently.

Table 1. Population characteristics

Variable		Total	Frequency of doctor visits/year (<1)		(>=1)		Statistical test	
		N=265	n=75	%	n=190	%	x^2	*p*
Contextual characteristics								
	outer suburbs	99	24	0.24	75	0.76	6.488	**0.039**
	inner suburbs	93	22	0.24	71	0.76		
	central urban	73	29	0.40	44	0.60		
Predisposing factors								
Age	<60	34	7	0.21	27	0.79	1.144	0.285
	≥60	231	68	0.29	163	0.71		
Gender	male	122	33	0.27	89	0.73	0.175	0.676
	female	143	42	0.29	101	0.71		
Disease understanding	quite understanding	112	27	0.24	85	0.76	1.682	0.195
	not very clear	153	48	0.31	105	0.69		
Enabling factors								
Household income	<3000	70	28	0.40	42	0.60	6.825	**0.078**
	3000-7000	92	22	0.24	70	0.76		
	>7000	60	16	0.27	44	0.73		
	unknow	43	9	0.21	34	0.79		
Medical insurance type	resident	160	48	0.30	112	0.70	2.334	0.311
	employee	90	21	0.23	69	0.77		
	others	15	6	0.40	9	0.60		
education	low	204	67	0.33	137	0.67	10.252	**0.006**
	medium	39	7	0.18	32	0.82		
	high	22	1	0.05	21	0.95		
Distance to medical institutions (walking/min)	15	149	54	0.36	95	0.64	11.517	**0.003**
	15-60	102	20	0.20	82	0.80		
	≥60min	14	1	0.07	13	0.93		
Need factors								
More than one chronic disease	yes	135	39	0.29	96	0.71	0.047	0.829
	no	130	36	0.28	94	0.72		
Diabetes or hypertension	yes	193	52	0.27	141	0.73	0.646	0.421
	no	72	23	0.32	49	0.68		
Length of illness (years)	<5	62	17	0.27	45	0.73	2.709	0.258
	5-10	81	18	0.22	63	0.78		
	>10	122	40	0.33	82	0.67		
Disease management confidence	full agreement	17	11	0.65	6	0.35	12.055	**0.002**
	partial consent	118	32	0.27	86	0.73		
	disagree	130	32	0.25	98	0.75		
Disease stability	stable	223	49	0.22	174	0.78	27.773	**<0.001**
	instable	42	26	0.62	16	0.38		

Associated factors of health services utilization in multiple logistic regression analysis

Variables with a p-value < 0.2 were further analyzed in the multiple logistic regression model. The results showed that the distance to medical institutions (OR=2.237, 95% CI: 1.046-4.783, P=0.038), education (OR=15.488, 95% CI: 1.672-143.497, P=0.016) and the stability of patients with chronic diseases (OR=0.269, 95% CI: 0.114-0.636, P=0.003) are the main factors affecting the utilization of health services for patients with chronic diseases. However, contextual characteristics, Disease understanding, household income and disease management confidence did not reach statistical significance in relation to health services utilization for patients with chronic diseases .

Table 2. Multi-factor logistics regression analysis

Variable	OR	95%CI	*p* Value
Contextual characteristics			
outer suburbs	Reference		
inner suburbs	0.844	0.312-2.282	0.738
central urban	0.767	0.261-2.258	0.631
Disease understanding			
quite understanding	Reference		
not very clear	1.014	0.483-2.127	0.971
Household income			
<3000	Reference		
3000-7000	1.321	0.568-3.074	0.518
>7000	0.540	0.195-1.494	0.235
unknow	2.504	0.871-7.197	0.088
Education			
low	Reference		
medium	2.070	0.739-5.797	0.166
high	15.488	1.672-143.497	0.016
Distance to medical institutions			
15	Reference		
15-60	2.237	1.046-4.783	0.038
≥60	10.754	1.075-107.587	0.043
Disease management confidence			
full agreement	Reference		
partial consent	0.899	0.463-1.745	0.753
disagree	0.487	0.119-1.998	0.318
Disease stability			
stable	Reference		
instable	0.269	0.114-0.636	0.003

Conclusion:

The government should consider promoting and improving the family doctor contract service, strengthening the health education, and encouraging health services utilization to achieve the purpose of controlling the condition of patients with chronic diseases

Reference: Omitted.

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