



Outpatient healthcare-seeking behavior and influencing factors among residents in Guangdong Province: An analysis based on the seventh national health service survey in 2023 [☆]

CHEN Long, HU Wei, YE Bing*

Guangdong Provincial Health Commission Affairs Center, Guangzhou, China



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ABSTRACT

Background: The tiered healthcare delivery system is a crucial component in deepening healthcare reform. Analyzing the healthcare-seeking choices of outpatients and their influencing factors from the demand-side perspective, based on real-world data, holds significant practical importance for advancing the tiered healthcare system and promoting the high quality development of healthcare services.

Objective: To identify outpatient healthcare-seeking behavior and influencing factors among residents of Guangdong Province in the context of tiered healthcare system. The report is for supporting policies on rational healthcare utilization.

Methods: Data were obtained from the Seventh National Health Service Survey in 2023, covering eight sampled counties (districts/cities) of Guangdong Province. Descriptive statistics were performed using frequencies and proportions. Univariate analysis was conducted using the Chi-square test, followed by multivariable logistic regression, with “whether patients choose first contact at primary care facilities for sickness within two-weeks” as the dependent variable, variables with statistical significance in univariate analysis ($P < 0.05$) were included in the regression model.

Results: In total, 72.2% patients choose first contact at primary care facilities within two-weeks. Patients in rural areas (OR=1.561, 95% CI: 1.170–2.082), proximity to a primary care facility (OR=3.870, 95% CI: 2.915–5.136), enrollment in urban-rural resident basic medical insurance (OR=2.209, 95% CI: 1.695–2.879), and perceived mild illness (OR=3.458, 95% CI: 2.449–4.883) are more likely to choose primary care facility, while those with education levels above high school (OR=0.498, 95% CI: 0.293–0.847) and didn't contract with a family doctor (OR=0.671, 95% CI: 0.504–0.894) were more likely to seek care at general hospitals.

Conclusion: The majority of Guangdong residents preferred primary care facility for first contact, but there is still a space of improvement. Both environmental and individual factors significantly influence healthcare-seeking choices. Efforts should focus on optimizing the distribution and accessibility of primary care facilities, strengthening service capacity and management efficiency, to promote rational healthcare utilization of residences.

The tiered health-care system is a supply-side healthcare policy that classifies patients according to their symptoms and assigns them to different medical institutions based on the severity and complexity of their conditions. The system aims to establish a service model characterized by “first contact in primary care, dual-directional referrals, differentiated management of acute and chronic diseases, and vertical coordination among healthcare institutions.” Promoting tiered health-care system is the key of healthcare reform in China. Since 2015, both the Chinese central government and the Guangdong provincial government incorporated the “proportion of residents choose first contact at primary care facilities for two-weeks sickness” as a key performance indicator in

the pilot setting, setting a target of no less than 70%. However, China has not implemented policies to enforce first contact in primary care. Consequently, from the demand side, residents still enjoy have freedom in choosing medical services.¹ There are similarities in the concepts such as “first contact in primary care” and “dual-directional referrals” in China with “three-tiered healthcare system”, “general practitioner (GP) system”, and “gatekeeper mechanism” in other countries, both focused on the design and operational mechanisms of tiered healthcare systems, involving healthcare system, GP service models, medical subsidy policies, and digital health platforms. Previous research showed that multiple factors may facilitate patients choose first contact at general hospitals

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* Corresponding author.

E-mail address: 2532178703@qq.com (Y. Bing).

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or specialized institutions, such as perceived illness severity, personal preferences, cultural traditions, social norms, the expansion and marketing strategies of general hospitals, induced demand from specialty care, and the design of health insurance systems.²⁻⁴ In China, regional variations are evident, 53.06% of residents in Ningxia, 60.7% in Jiangxi, and 78.3% in Shandong choose first contact at primary care facilities for two-weeks sickness,⁵ compared with a benchmark of 80% recommended by The World Health Organization.⁶ There remains a lack of analysis regarding whether China's tiered healthcare system effectively improves rational healthcare-seeking behavior. This study investigates the facilities of patients' first contact for two-weeks sickness and examine the influencing factors, aim to provide evidence for promoting rational healthcare utilization, improving the tiered healthcare system, and developing healthcare system in China.

Materials and methods

Research data

The research data were derived from the Seventh National Health Service Survey in 2023 to collect data of eight sampled counties (districts or cities): Liwan District (Guangzhou), Nanshan District (Shenzhen), Yingde City (Qingyuan), Sihui City (Zhaoqing), Zhongshan City, Shunde District (Foshan), Meijiang District (Meizhou), and Yangdong District (Yangjiang). The Seventh National Health Service Survey in 2023 is organized by the National Health Commission of China and approved by the National Bureau of Statistics, the survey employed a multistage stratified random sampling method in accordance with the National Health Statistical Survey System. In each selected county, five townships (or subdistricts) were randomly chosen; from each township, two villages (or neighborhood committees) were further selected using simple random sampling. Within each sampled village or neighborhood, households were randomly chosen as survey units. The selected households participated the door-to-door survey administered by trained local investigators, with the assistance of village or community officials. The survey achieved a 100% household response rate. In total, 12,836 individuals from 4,801 households were surveyed in Guangdong Province. For the present analysis, we focused on 2,213 respondents who reported experiencing illness within the two weeks preceding the survey and had visited a healthcare facility for their first consultation during that period.

Research methods

Variable selection

The dependent variable was the type of healthcare facility chosen by residents for first consultation within the two weeks preceding the survey, which was measured using the question from the Seventh National Health Service Survey: "Which facility did you choose for first consultation during the two weeks prior to the survey?" According to the classification framework outlined in the National Health Statistical Survey System, healthcare facilities were categorized into: (1) Hospitals: county-level, municipal-level, and provincial-level (or higher) public hospitals, as well as private hospitals; (2) Primary care facilities: outpatient clinics, village clinics, community health centres, and township (or subdistrict) health centres. The independent variables were divided into: (1) Environmental factors, such as urban-rural residence and the type of the nearest healthcare facility; (2) Individual factors, including age, gender, employment status, type of medical insurance, and self-perceived severity of illness. Detailed definitions and coding of all variables are presented in Table 1.

Statistical analysis

All statistical analyses were performed using SPSS version 21.0. Frequency and proportion were used for statistical description. Chi-square

Table 1
Variable coding description.

Variable	Coding Description
Dependent Variable	
Choice for first contact within 2 weeks	Hospital = 0; Primary care facility = 1
Independent Variables	
Age	< 40 years = 1; 40-70 years = 2; ≥ 70 years = 3
Gender	Male = 1; Female = 2
Registered residence	Within the same county/district = 1; Outside the county/district = 2
Urban-rural category	Urban = 1; Rural = 2
Type of nearest facility	Hospital = 0; Primary care facility = 1
Annual household income	< 50,000 CNY = 1; 50,000-100,000 CNY = 2; ≥ 100,000 CNY = 3
Marital status	Not married = 0; Married = 1
Educational level	No formal schooling = 1; Primary school = 2; Junior high school = 3; Senior high school or above = 4
Type of health insurance	Urban employee basic medical insurance(UEBMI)= 1; Urban-rural resident medical insurance = 2; Other (including public insurance) = 3; None = 4
Contracted with a family doctor	Yes = 1; No = 2; Not sure = 3
Employment status	Unemployed = 0; Employed = 1
Smoking	No = 0; Yes = 1
Alcohol consumption	No = 0; Yes = 1
Presence of chronic disease	No = 0; Yes = 1
Self-perceived severity of illness	Severe = 1; Moderate = 2; Not severe = 3

test was employed for univariate analyses to examine associations between categorical variables.

A multivariate logistic regression was used to identify factors influencing the choice of facility, with "whether patients choose first contact at primary care facilities for two-weeks sickness" as the dependent variable, including variables showing statistically significant in the univariate analysis ($P < 0.05$). All statistical tests were two-tailed, and a significance level of $\alpha = 0.05$ was applied.

Results

The seventh national health service survey in Guangdong province

Among all respondents in the Seventh National Health Service Survey conducted in Guangdong Province, 50.4% were male, and 77.6% were married. Respondents with an education level of junior high school or below accounted for 57.3%, while 53.6% were employed at the time of the survey. In terms of health insurance coverage, 97.8% of residents reported being enrolled in social health insurance. The two-weeks sickness rate based on self-reported illness episodes was 39.0%, representing a 1.5 percentage-point decrease compared with 2018.

Basic characteristics of the sample

Among the participants included in this study, 72.2% chose primary care facilities for first consultation within the two-weeks recall period. The majority of participants were aged 40 to 70 years, accounting for 48.6% of the sample, with females slightly more than males. A vast majority (93.9%) held local household registration. In terms of geographic accessibility, for 85.0% of respondents, the nearest healthcare facility was a primary care facility. Most participants were married (67.0%) and the dominant type of health insurance coverage was Urban and Rural Resident Basic Medical Insurance, reported by 64.5% of participants. Furthermore, 63.5% of participants contracted with a family doctor, and 56.4% reported chronic illness. Details are presented in Table 2.

Table 2
Distribution of variables (n = 2213).

Variable	Category	Cases	Percentage
Choice for first contact within 2 weeks	Hospital	616	27.8
	Primary care facility	1597	72.2
Age	< 40 years	572	25.8
	40–70 years	1075	48.6
	≥ 70 years	566	25.6
Gender	Male	1013	45.8
	Female	1200	54.2
Registered residence	Within the same county/district	2064	93.3
	Outside the county/district	149	6.7
Urban–rural category	Urban	1382	62.4
	Rural	831	37.6
Type of nearest facility	Primary care facility	332	15.0
	Hospital	1881	85.0
Annual household income	< 50,000 CNY	572	25.8
	50,000–100,000 CNY	1075	48.6
	≥ 100,000 CNY	566	25.6
Marital status	Not married	730	33.0
	Married	1483	67.0
Educational level	No formal schooling	171	7.7
	Primary school	702	31.7
	Junior high school	548	24.8
	Senior high school or above	792	35.8
Type of health insurance	UEBMI	709	32.0
	Urban–rural resident medical insurance	1427	64.5
	Other (including public insurance)	41	1.9
Contracted with a family doctor	None	36	1.6
	Yes	1405	63.5
	No	399	18.0
	Not sure	409	18.5
Employment status	Unemployed	560	30.0
	Employed	1305	70.0
Smoking	No	1588	81.6
	Yes	357	18.4
Alcohol consumption	No	1529	78.6
	Yes	416	21.4
Presence of chronic disease	No	964	43.6
	Yes	1249	56.4
Self-perceived severity of illness	Severe	418	18.9
	Moderate	1240	56.0
	Not severe	555	25.1

Univariate analysis of factors influencing the choice for first consultation within two weeks

Chi-square tests were performed to examine the associations between influencing factors and the type of healthcare facility selected for the first consultation within the two-weeks recall period. The results showed that several variables were significantly associated with the type of facility ($P < 0.05$), including: age, household registration location, urban–rural classification, type of nearest healthcare facility, annual household income, educational attainment, type of medical insurance, family doctor contracted status, employment status, smoking status, presence of chronic disease, and self-perceived severity of illness. Specifically, individuals who were older, had local household registration, lived in rural areas, had a primary care facility as the nearest facility, reported higher household income, possessed lower educational attainment, were covered by Urban and Rural Resident Basic Medical Insurance, contracted with a family doctor, were unemployed, smoked, had chronic diseases, or perceived illness as less severe, were more likely to choose primary care facility for initial consultation within the two-weeks period. Detailed results are presented in [Table 3](#).

Multivariate analysis of factors influencing the choice for first consultation within two weeks

To further identify factors influencing the choice of residents' first consultation within the two-weeks recall period, a multivariate logistic regression analysis was conducted. Variables that were statistically

significant in the univariate analysis ($P < 0.05$) were considered as independent variables, while the dependent variable was whether patients choose first contact at primary care facilities (coded as 1) or hospitals (coded as 0) for two-weeks sickness. Multicollinearity diagnostics indicated that the mean Variance Inflation Factor (VIF) was 1.213, suggesting no significant multicollinearity among the independent variables. The regression results revealed that urban–rural classification, type of nearest healthcare facility, self-perceived severity of illness or injury, type of health insurance, whether contracted with a family doctor were significantly associated with a higher likelihood of choosing a primary care facility for the first consultation ($P < 0.05$). Detailed regression results are presented in [Table 4](#).

Discussion

High proportion of residents choosing primary care facilities for initial visits in Guangdong, with rooms for improvement

In 2023, 72.2% of Guangdong residents reported choosing primary care facilities for their first consultation within a two-weeks period. This represents a 7.1-percentage-point increase compared with the results of the 2018 Sixth National Health Service Survey conducted in the province, the rate also exceeds those observed in Ningxia (53.06%) and the national average (69.6%) in China in 2018. Despite this progress, nearly 30% of residents still chose hospitals for their initial consultation, requiring further improvement to achieve the goal of “first contact in primary care” by multiple strategies.³

Table 3
Univariate logistic regression analysis of the choice for first contact within two weeks among Guangdong residents.

Variable	Category	Hospital(n, %)	Primary care facility(n, %)	χ^2	P
Age	< 40 years	194(33.9)	378(66.1)	17.877	<0.001
	40–70 years	293(27.3)	782(72.7)		
	≥ 70 years	129(22.8)	437(77.2)		
Gender	Male	278(27.4)	735(72.6)	0.143	0.763
	Female	338(28.2)	862(71.8)		
Registered residence	Within the same county/district	555(26.9)	1509(73.1)	13.657	<0.001
	Outside the county/district	61(40.9)	88(59.1)		
Urban–rural category	Urban	485(35.1)	897(64.9)	96.531	<0.001
	Rural	131(15.8)	700(84.2)		
Type of nearest facility	Hospital	196(59.0)	136(41.0)	176.800	<0.001
	Primary care facility	420(22.3)	1461(77.7)		
Annual household income	< 50,000 CNY	194(33.9)	378(66.1)	17.877	<0.001
	50,000–100,000 CNY	293(27.3)	782(72.7)		
	≥ 100,000 CNY	129(22.8)	437(77.2)		
Marital status	Not married	219(30.0)	511(70.0)	2.541	0.111
	Married	397(26.8)	1086(73.2)		
Educational level	No formal schooling	21(12.3)	150(87.7)	91.382	<0.001
	Primary school	141(20.1)	561(79.9)		
	Junior high school	145(26.5)	403(73.5)		
	Senior high school or above	309(39.0)	483(61.0)		
Type of health insurance	UEBMI	298(42.0)	411(58.0)	119.482	<0.001
	Urban–rural resident medical insurance	287(20.1)	1140(79.9)		
	Other (including public insurance)	17(41.5)	24(58.5)		
	None	14(38.9)	22(61.1)		
Contracted with a family doctor services	Yes	345(24.6)	1060(75.4)	26.292	<0.001
	No	149(37.3)	250(62.7)		
	Not sure	122(29.8)	287(70.2)		
Employment status	Unemployed	126(22.5)	434(77.5)	10.265	0.001
	Employed	388(29.7)	917(70.3)		
Smoking	No	455(28.7)	1133(71.3)	8.591	0.003
	Yes	75(21.0)	282(79.0)		
Alcohol consumption	No	419(27.4)	1110(72.6)	0.086	0.770
	Yes	111(26.7)	305(73.3)		
Presence of chronic disease	No	294(30.5)	670(69.5)	6.027	0.014
	Yes	322(25.8)	927(74.2)		
Self-perceived severity of illness	Severe	152(36.4)	266(63.6)	32.344	<0.001
	Moderate	353(28.5)	887(71.5)		
	Not severe	111(20.0)	444(80.0)		

Table 4
Multivariate logistic regression analysis of the choice for first contact within two weeks among Guangdong residents.

Variable	Wals χ^2	OR(95 % CI)	P	
Urban-rural category (Urban)	9.174	1.561(1.170–2.082)	0.002	
Educational level (No formal schooling)	Primary school	1.003	0.767(0.456–1.289)	0.317
	Junior high school	1.267	0.738(0.434–1.253)	0.260
	Senior high school or above	6.613	0.498(0.293–0.847)	0.010
	Type of nearest facility (Hospital)	87.756	3.87(2.915–5.136)	<0.001
Self-perceived severity of illness(Severe)	Moderate	21.110	1.923(1.455–2.541)	<0.001
	Not severe	49.701	3.458(2.449–4.883)	<0.001
	Type of health insurance (UEBMI)	Urban–rural resident medical insurance	34.342	2.209(1.695–2.879)
Other (including public insurance)		0.091	1.161(0.441–3.055)	0.763
None		0.655	1.596(0.515–4.947)	0.418
Contracted with a family doctor(Yes)	No	7.443	0.671(0.504–0.894)	0.006
	Not sure	11.183	0.599(0.444–0.809)	0.001

Environmental factors of the choice for first consultation within two weeks

Geographical accessibility emerged as a critical determinant of residents' choice for first consultation within two weeks, rural residents were more likely to choose primary care facilities, whereas urban residents tended to seek care directly at hospitals, which is consistent with findings from other provinces such as Shandong.² Furthermore, residents whose nearest healthcare facility was a primary care facility were significantly more likely to choose it for first consultation. Conversely,

those living closer to hospitals were more likely to bypass primary care, suggesting that proximity, convenience, and timeliness of access are key factors influencing the utilization of primary care services.⁷

Health insurance coverage also played an important role in shaping healthcare-seeking preferences. Residents covered by Urban and Rural Resident Basic Medical Insurance tended to choose primary care facilities, whereas those enrolled in Urban Employee Medical Insurance, other public or private schemes, or without any insurance were more likely to seek care at hospitals. These results indicate the influence of

health insurance system on residents' initial consultation choices. Financial incentives and reimbursement policies favoring primary care services may encourage insured individuals to choose primary care facilities.¹ In contrast, uninsured residents without such economic support may prioritize convenience when making healthcare decisions. Insurance reimbursement mechanisms should be improved to encourage residents outside the insurance schemes choose primary care facilities for initial consultations.⁸

Individual factors of the choice for first consultation within two weeks

Residents with a junior high school education or below were more likely to choose primary care facilities for first consultation, whereas those with a senior high school education or higher tended to choose non-primary facilities. This disparity may reflect differences in health literacy,⁹ health awareness, and socioeconomic status¹⁰ across educational groups. Residents contracted with a family doctor preferred primary care facilities, those who did not contract with a family doctor tended to choose non-primary settings. This finding underscores the important gatekeeping and guiding role of family doctor in directing residents toward first contact in primary care. Furthermore, self-perceived severity of illness emerged as another key factor influencing healthcare choices. Residents who regarded their conditions as severe were more likely to visit hospitals or specialist institutions, which may be caused by a lack of confidence in the quality and capacity of primary care facilities. However, many of these conditions could be effectively managed within primary care settings.² These findings highlight the urgent need to address weaknesses in primary care delivery,¹¹ improve service quality,¹² and enhance public trust in primary care facilities.

Policy recommendations

Improve health resources allocation and optimize primary care facilities distribution

Accessibility and convenience are key determinants of healthcare service utilization.

In accordance with the Guiding Opinions of the General Office of the State Council on Promoting the Development of a Tiered Healthcare System, regional health and medical institution planning should play a stronger guiding and regulatory role in resource allocation, the rational geographic distribution of primary care facilities should be ensured, private healthcare institutions should be supported by streamlining administrative procedures for the approval of independent medical practice and encouraging qualified physicians to establish private or community-based clinics, to deliver high-quality, convenient, and continuous primary care closer to residents.⁹

Continuously strengthen primary care workforce and improve service capacity

Healthcare professionals are the foundation and driving force of medical care delivery.^{13,14} It is crucial to strengthen workforce development with a focus on the construction of primary care professionals(PCPs) team, training of local PCPs and attraction of high-quality professionals.¹⁵

The quality, efficiency and satisfaction of primary care can be improved based on the link of service, technology, management and assets, supports from medical consortiums and designated medical institutions, as well as completed management system.

Strengthen policy guidance and public awareness to encourage primary care utilization

First, the family doctor contracted system should be continuously optimized to enhance the quality of contracted services. Second, health

insurance policies should be adjusted to guide both the supply and demand sides of healthcare utilization, such as maximizing the guiding function of medical insurance and public health funds⁴ in healthcare-seeking behavior, and increasing reimbursement rates for primary care services.¹⁶ Third, the role of public media should be enhanced in the promotion of improved primary care quality and tiered healthcare system, to establish scientific concept of healthcare-seeking of residents and improve their recognition and trust in primary care facilities, enhance their health literacy and healthcare-seeking behavior, encourage them choose primary care facilities for medical care.

Strengths and limitations of the study

This study analyzed outpatient healthcare-seeking behavior and influencing factors among residents in Guangdong Province based on data from the 2023 Seventh National Health Service Survey of China. By adopting a demand-side perspective, the study provides a nuanced understanding of how geographic accessibility, environmental context, and individual characteristics such as enrollment in family doctor contracted services shape residents' choice of healthcare institution. The findings support the insights for guiding rational health-care seeking and improving tiered healthcare system.

However, several limitations should be acknowledged. First, the data were derived from eight sampling counties(districts/cities) of Guangdong Province, the results may not be fully generalizable to other regions. Second, the internal logic of the influence of individual factors on healthcare seeking behavior remains to be further explored, such as specific disease types, severity and urgency of the conditions and self experience. Third, the measure of "choice for first consultation within two weeks" was based on respondents' self-reported recall, which may be subject to recall bias and ignorance of seasonal variation or public holidays. Finally, the "choice for first consultation within two weeks" did not perfectly correspond to the strict policy definition of "first contact as primary care", the exact rate of "first contact as primary care" could not be precisely calculated in this study.

Competing interests

All authors declare that there are no competing interests

Declarations

Not applicable.

Authors' contributions

Conceptualization, C.L.; Methodology, C.L.; Data curation, H.W.; Formal analysis, H.W.; Funding acquisition, not applicable; Project administration, not applicable; Resources, not applicable; Supervision, Y.B.; Validation, Y.B.; Writing—original draft, C.L.; Writing—review and editing, Y.B. All authors have read and agreed to the published version of the manuscript.

Ethical approval and consent to participate

The study received approval from Ethics Committee of the Fifth People's Hospital of Chengdu (Approval No: Lunsen 2021-071 (Ke)-01).

Consent for publication

Not applicable.

Availability of data and materials

Not applicable.

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