Responsiveness Evaluation of Community Health Services for Residents of Different Age Groups in Zhejiang Province: Current Status and Influencing Factors (Postprint)

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Abstract

Background: Responsiveness, as an important goal of health system performance evaluation, is a crucial basis for improving primary health care service capacity. Currently, many studies confuse the concepts of responsiveness and satisfaction, provide incomplete evaluations of responsiveness, and focus on studying the level of responsiveness while neglecting its distribution.

Objective: To understand the current status of responsiveness evaluation of community health services by residents of different age groups seeking care in Zhejiang Province, and to analyze its related influencing factors.

Methods: Using a combination of purposive sampling and convenience sampling, six community health centers in Hangzhou and Taizhou cities of Zhejiang Province were selected as survey sites from July to August 2022, and a responsiveness scale survey was conducted among outpatient residents; the WHO-recommended weights for the eight domains of responsiveness were used to calculate the overall level and distribution of responsiveness, and univariate analysis and multiple linear regression analysis were employed to explore the influencing factors of community health service responsiveness evaluation among residents of different age groups.

Results: The responsiveness score for community health services among residents seeking care in Zhejiang Province was $(8.31\$\pm1.04)points, witharesponsivenessdistributionindexof0.13$; points respectively. Household registration was an influencing factor of responsiveness evaluation of community health services among young people, while education level and monthly income were influencing factors among middle-aged people ($P<0.05$).

Conclusion: The overall level of responsiveness of community health services in

Zhejiang Province is good and the distribution is relatively equitable. Attention should be paid to the community health service needs and responsiveness of young people with urban household registration and middle-aged people with college/undergraduate education or above. Primary community health centers still need to improve in enabling patients to obtain information about medical and health service plans and to freely choose community doctors/nurses, in order to better meet residents' reasonable health service needs.

Full Text

Analysis of Responsiveness Assessment and Its Influencing Factors of Community Health Services Among Residents of Different Ages in Zhejiang Province

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Abstract

Background: Responsiveness is a key goal in evaluating the performance of health systems and an essential basis for improving primary health service capacity. Currently, many studies confuse the concepts of responsiveness and satisfaction, and their evaluations of responsiveness are not comprehensive enough, focusing on the level of responsiveness while ignoring its distribution. **Objective:** To understand the responsiveness evaluations of community health services among residents of different ages in Zhejiang Province and to analyze their influencing factors. **Methods:** Using a combination of purposive and convenience sampling, six community health service centers in Hangzhou and Taizhou, Zhejiang Province, were selected as investigation sites from July to August 2022 to assess the responsiveness of outpatient residents. The weights of the eight components of responsiveness recommended by the WHO were used to calculate the overall level and distribution of responsiveness. Univariate analysis and multiple linear regression were employed to explore the influencing factors on responsiveness levels among residents of different ages. **Results:** The responsiveness score for community health services in Zhejiang was $(8.31\pm1.04) points, and the responsiveness distribution index was 0.13. Residents across all age groups gave higher$ points, respectively. Household registration was an influencing factor for responsiveness evaluation among young people, while education level and monthly income were influencing factors for responsiveness evaluation among middle-aged individuals ($P<0.05$). **Conclusion:** The overall level of community health service responsiveness in Zhejiang Province is good, and the distribution is relatively balanced. More attention should be paid to the demand and responsiveness of community health services among young people with urban household registration and middle-aged people with a college/bachelor' s degree

or above. Primary care community health service centers still need to improve in providing patients with access to information about health service plans and the freedom to choose community doctors/nurses, thereby better satisfying residents' reasonable healthcare service demands.

Keywords: Community health services; Responsiveness; Cross-sectional studies; Influence factors analysis; Multiple linear regression; Zhejiang province

Introduction

In 2023, the General Office of the State Council issued the "Opinions on Further Improving the Medical and Health Service System" [**?**], which proposed strengthening the foundation of urban and rural primary medical and health services, particularly by enhancing the standardized construction of township health centers and community health service centers and developing community hospitals. As the grassroots organization of the urban health service system, community health services play an important role in facilitating residents' access to medical care, reducing cost burdens, and establishing harmonious doctor-patient relationships. Although continuous efforts have been made in recent years to improve the service capacity of community health services as the optimal carrier of primary care, they still cannot meet residents' rapidly growing health service demands. Responsiveness refers to the understanding and appropriate response of medical and health institutions to individuals' generally reasonable expectations, and it is one of the three major goals of health service performance evaluation proposed by WHO in the *World Health Report 2000* [**?**]. Studying the responsiveness of community health services can effectively reflect the gap between the services residents actually receive and those they expect to receive, help understand the degree to which public reasonable expectations are met, and identify service deficiencies, with the aim of providing residents with high-quality and efficient health services. Currently, research on responsiveness has mainly focused on the level and distribution of responsiveness, evaluation of responsiveness equity, and related influencing factors, with a lack of studies on the responsiveness of primary medical and health institutions, and the few existing studies have only emphasized evaluating the level of responsiveness while ignoring its distribution [**?**]. This study analyzes the evaluations of community health service responsiveness among residents of different ages in Zhejiang Province, including both the level and distribution of responsiveness, compares differences in responsiveness to community health services among different populations, and analyzes factors influencing residents' evaluations of community health service responsiveness across different age groups, aiming to scientifically and reasonably evaluate the current status of residents' responsiveness evaluations and provide a basis for improving primary community health service levels.

Methods

1.1 Survey Subjects

This study employed a combination of purposive and convenience sampling. After comprehensively considering the types of county medical community construction and different economic development statuses (2022 GDP development levels) in Zhejiang Province, the research team identified Hangzhou (ranked 1st in GDP) and Taizhou (ranked 6th in GDP) as the sample prefecture-level cities. In Hangzhou' s X district, 20 community health service centers from 5 medical communities were categorized into three tiers (good, medium, and poor) based on operational status, and one center from each tier was conveniently selected for empirical research. Similarly, in Taizhou' s Y district, three community health service centers of different tiers were conveniently selected from 3 medical communities, totaling six community health service centers as survey sites. Outpatient residents were surveyed using a responsiveness scale from July to August 2022. According to WHO age classification standards, respondents were divided into young people (<44 years), middle-aged people (45-59 years), and elderly people ($ $60 years). The screening criteria for survey subjects were: local outpatient residents who had utilized community health services within the past year and were willing to cooperate with the survey. This study was approved by the Scientific Research Ethics Committee of Hangzhou Normal University (approval number: 2022-1118). A total of 649 questionnaires were distributed on-site, and 610 valid questionnaires were recovered, with an effective recovery rate of 93.99%.

1.2.1 Responsiveness Scale

The questionnaire included sociodemographic characteristics (gender, age, local resident status, household registration, education level, occupation, marital status, medical insurance type, and average monthly income) and a responsiveness scale. The responsiveness scale adopted the WHO Key Informant Health System Responsiveness Survey version [**?**], comprising 11 questions across 8 dimensions in two parts: respect for persons and patient-centered care (dignity, autonomy, confidentiality, communication, promptness, quality of basic amenities, choice, and social support). In this study, the Cronbach' s α for the responsiveness scale was 0.92, indicating high internal consistency. Factor analysis of the 11 questions yielded KMO=0.912, and Bartlett' s test of sphericity reached statistical significance (^{2}/df=4291.84/55, P<0.001), demonstrating good scale validity. The 8 dimensions were divided into five levels (very good, relatively good, average, relatively poor, very poor). Following WHO weighting standards, the five levels were assigned values of 10, 8, 6, 4, and 2 points, respectively. Using the WHO-determined weights for the eight components of responsiveness, the overall responsiveness level index was calculated by weighting the mean scores of each dimension according to their weight coefficients, using the formula: Resp = $_{8\ 1}$ W S , where S represents the average score of each responsiveness dimension and W represents the weight of the eight dimensions. The weight coefficients

for dignity, autonomy, confidentiality, communication, promptness, quality of basic amenities, choice, and social support were 0.125, 0.125, 0.125, 0.125, 0.200, 0.100, 0.150, and 0.050, respectively [**?**].

1.2.3 Responsiveness Distribution Calculation Method

The distribution of responsiveness in Zhejiang Province' s community health service centers was determined by calculating the WHO-defined responsiveness distribution index, which represents the difference between individual scores and the mean (IMD), ranging from 0 to 1. A value of 0 indicates the most equitable distribution, while 1 indicates the most inequitable distribution. The formula is: IMD(α,β) = ($_1$|Y - |)/n , where n is the sample size, Y represents the responsiveness score of respondents, and represents the mean responsiveness score of respondents. β controls whether IMD is a relative or absolute indicator; when α=2 and β=0, IMD is an absolute indicator, and when α=2 and β=1, IMD is a relative indicator. In this study, α and β took the WHO-recommended values of 2 and 1 [**?**].

1.4 Statistical Methods

A database was established using Epidata 3.1, and statistical analysis was performed using SPSS 21.0. The responsiveness distribution index was calculated using Excel. Normally distributed measurement data were expressed as ($\bar{x}\pm s$). Comparisons between two groups were conducted using t-tests, comparisons among multiple groups were performed using one-way ANOVA, and pairwise comparisons within groups were conducted using the LSD-t method. Multiple linear regression analysis was used to explore influencing factors on responsiveness evaluations of community health services among different age groups, with a test level of α=0.05.

Results

2.1 Basic Characteristics of Respondents

This study surveyed 610 outpatient residents, including 284 young people, 93 middle-aged people, and 232 elderly people, accounting for 46.6%, 15.3%, and 38.1%, respectively. Women comprised 55.0% (334/610) of respondents; 58.8% (360/610) had junior high school education or above; 55.9% (363/610) had rural household registration; 57.6% (374/610) had urban-rural resident medical insurance; and 45.5% (295/610) had a monthly income below 3,500 yuan.

2.2 Comprehensive Evaluation of Community Health Service Responsiveness in Zhejiang Province

The overall responsiveness evaluation score for community health services among residents in Zhejiang was (8.31$±1.04)*points*, *witharesponsivenessdistributionindexof*0.130.*Thetotalresponsa* *aged*, *andelderlygroupswere*(8.30±1.07), (8.10±1.04), *and*(8.41±$1.00) points,

respectively, with the middle-aged group showing lower scores and the elderly group showing higher scores. Across all age groups, dignity and social support dimensions received the highest scores, while selectivity and autonomy dimensions received the lowest scores. Statistically significant differences were found among young, middle-aged, and elderly residents in the average scores for dignity and social support dimensions ($P<0.05$). Pairwise comparisons revealed that the average scores for the dignity dimension among young and middle-aged people were lower than those of elderly people, and the average score for the social support dimension among middle-aged people was lower than that of the elderly group, with statistically significant differences ($P<0.001$). The responsiveness distribution index for community health service centers in Zhejiang Province was 0.130, with indices of 0.137, 0.131, and 0.117 for the young, middle-aged, and elderly groups, respectively .

2.3 Univariate Analysis of Responsiveness Scores Among Residents with Different Demographic Characteristics

Univariate analysis showed that household registration and average monthly income were significantly associated with community health service responsiveness scores among young people ($P<0.05$), while no statistically significant differences were found in responsiveness scores across gender, local resident status, education level, occupation, marital status, or medical insurance type in any age group ($P>0.05$). Household registration and average monthly income were not significantly associated with responsiveness scores among middle-aged or elderly residents ($P>0.05$) .

2.4 Multiple Linear Regression Analysis of Factors Influencing Overall Responsiveness Levels Among Residents of Different Ages

Using the total responsiveness evaluation scores of residents in different age groups as dependent variables (assignment: actual values calculated according to the weight of each component) and variables proven by previous research results and statistically significant in univariate analysis [gender (assignment: 0=male, 1=female), local resident status (assignment: 0=no, 1=yes), household registration (assignment: 0=rural, 1=urban), education level (assignment: 0=primary school and below, 1=junior high/high school/technical secondary school, 2=college/bachelor' s degree and above), occupation (assignment: 0=government/enterprise/institution, 1=student, 2=worker/farmer, 3=retired, 4=unemployed, 5=business/self-employed/other), marital status (assignment: 0=unmarried, 1=married), medical insurance type (assignment: 0=none, 1=commercial insurance, 2=urban-rural resident medical insurance, 3=urban employee medical insurance), average monthly income (assignment: 0=<3,500 yuan, 1=3,501-4,999 yuan, 2=$ $5,000 yuan)] as independent variables, multiple linear regression analysis was conducted. The results showed that household registration was an influencing factor for responsiveness scores among young people ($P<0.05$), while education level and average monthly

income were influencing factors for responsiveness scores among middle-aged people (P<0.05) .

Discussion

3.1 Relatively High Level of Community Health Service Responsiveness in Zhejiang Province

This study measured the responsiveness score of community health services in Zhejiang as (8.31$±$1.04) points, slightly higher than evaluation results reported in most domestic literature [**?**]. This may be because documents such as the "Opinions of Zhejiang Provincial Health Commission on Doing a Good Job in Primary Health Care in the Construction of County Medical Communities" [**?**] have clarified the responsibilities and tasks of primary health care in county medical community construction and required the implementation of basic public health project work, leading to continuous improvement in primary health services and responsiveness levels. Among the scores for various dimensions of overall responsiveness level, the social support dimension scored the highest, consistent with most domestic studies [**?**], possibly because most residents are accompanied by family members when seeking medical care and can conveniently maintain contact with the outside world. The selectivity dimension scored the lowest, similar to the findings of UGHASORO et al. [**?**]. This may be related to the small number of medical staff in community health service centers [**?**], and residents' limited understanding of primary care staff' s diagnostic and treatment capabilities, preventing them from choosing doctors based on competence and resulting in low ratings for the selectivity dimension. Therefore, community health service centers need to strengthen publicity to improve residents' understanding of staff capabilities and enhance ratings for the selectivity dimension. All age groups gave the highest ratings to social support and dignity dimensions, indicating that community health service medical staff focus on humanistic, family-centered care and respect for patients during treatment. All age groups gave the lowest ratings to selectivity and autonomy dimensions, suggesting that community health services need improvement in informing patients about health service plans, allowing them to freely choose community doctors/nurses, and enabling them to understand their conditions and participate in treatment decisions. Thus, when providing health services, community health service center medical staff should increase communication with patients to help them fully understand their health and disease conditions, treatment purposes, and participate in treatment decisions, thereby improving residents' evaluations of the treatment autonomy dimension.

3.2 Analysis of Influencing Factors on Community Health Service Responsiveness in Zhejiang Province

From the perspective of total responsiveness evaluation scores across age groups, the elderly group had the highest scores. This may be because, on the one hand,

as age increases, physical functions decline and health status deteriorates, leading to greater demand for and utilization of community health services among the elderly compared to other populations [**?**], manifested mainly in frequent medical examinations, medication management, and health consultations. This makes the elderly more active users of community health services and gives higher ratings because these services meet their special medical needs and help solve their health problems. On the other hand, Zhejiang Province has focused on promoting primary health care in recent years, implementing basic public health services for key populations such as those with hypertension and chronic diseases, continuously improving the health management rate for people over 65, and to some extent meeting the health needs of the elderly and enhancing their sense of gain from health services. Young people with urban household registration had lower scores for community health service responsiveness, similar to findings from foreign studies by LAMARCHE et al. [**?**] and WILLIAMS et al. [**?**]. This may be because urban areas have relatively richer medical resources and more convenient transportation, making it easier for young people to access higher-level medical services and making them more sensitive to medical service quality, so community health centers with relatively lower service levels cannot meet their needs [**?**]. Therefore, urban community health service centers need to achieve differentiated and coordinated development with general hospitals, form complementary businesses, optimize tiered diagnosis and treatment, and improve their own service quality to meet residents' health needs. Middle-aged people with college/bachelor' s degree or above had lower scores for community health service responsiveness, consistent with foreign research findings [**?**]. This may be because more educated individuals have higher expectations for non-medical services [**?**], broader knowledge, some understanding of their own health issues, and greater willingness to independently choose medical services, possibly preferring to seek care in large hospitals or specialized medical institutions and relatively neglecting community health services. Therefore, community health service centers should reasonably guide residents' health service demands, publicize the main service content of community health care, emphasize its advantages, actively implement family doctor contract systems, establish lasting and trusting doctor-patient relationships, and fully utilize community medical resources. Middle-aged people with monthly income $ $5,000 yuan had higher scores for community health service responsiveness, possibly because those with higher incomes have greater ability to pay for health services after meeting family living and social expenses, relatively less economic pressure, and higher acceptance of treatment costs [**?**]. Therefore, it is recommended to improve the medical social security system, actively try various measures, reduce community health service prices, or secure more medical benefits for low-income and economically disadvantaged populations.

The responsiveness level of community health services in Zhejiang Province is relatively high and equitably distributed. While community health service centers should pay attention to the health needs of young people with urban household registration and middle-aged people with college/bachelor' s degree or above,

they should also increase attention to selectivity and autonomy dimensions to better meet residents' health service demands and improve the responsiveness level of primary health services. This study used the WHO Key Informant Health System Responsiveness Survey version to comprehensively evaluate responsiveness across 2 aspects and 8 dimensions, demonstrating good scientific validity. The research sample was drawn from community health service centers of different tiers in different cities in Zhejiang Province, providing certain representativeness for the overall evaluation of community health service responsiveness. However, this study has limitations: (1) It only selected samples from Zhejiang Province with a relatively small sample size, insufficient to represent the national level. (2) This study analyzed influencing factors on responsiveness evaluations from the perspective of demographic characteristics but did not explore the association between objective environmental factors and residents' evaluations of community health services. Future research should increase the sample size from other provinces, conduct expanded surveys, comprehensively explore the impact of subjective and objective multiple influencing factors on community health service responsiveness, and consider measuring the equitable distribution of responsiveness.

As an important indicator reflecting non-medical technical aspects of medical service processes, responsiveness can effectively reflect the gap between the services residents actually receive from primary health care and those they expect to receive. This study helps community health service centers identify deficiencies and make improvements to provide high-quality health services to residents.

Author Contributions: SHI Yinan was responsible for conceptualization and overall framework design, statistical processing, figure and table preparation, and drafting the manuscript. ZHOU Chi proposed the research ideas, designed the research protocol, implemented the research process, revised the manuscript, and was responsible for quality control and review, with overall responsibility for the article.

Conflict of Interest: None declared.

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References

[1] General Office of the State Council. Opinions on Further Improving the Medical and Health Service System [A/OL]. (2023-03-23) [2024-04-19]. https://www.gov.cn/zhengce/2023-03/23/content_{5748063}.htm.

[2] WHO. The world health report 2000–Health systems: improving performance [EB/OL]. [2024-04-19]. https://iris.who.int/handle/10665/268209.

[3] WU H, LI YC, LIN L, et al. Study on the evaluation of responsiveness of community health service institutions in Henan Province by key informants [J]. Chinese Journal of Health Policy, 2015, 8(5): 48-53. DOI:10.3969/j.issn.1674-2982.2015.05.009.

[4] WANG QJ, WANG Q, WANG JM. Evaluation of responsiveness of community health services in Huangshi City [J]. Journal of Public Health and Preventive Medicine, 2013, 24(6): 121-123.

[5] XIAO L. Study on health system responsiveness in rural areas of Guizhou Province [D]. Wuhan: Huazhong University of Science and Technology, 2007.

[6] WU YT, CHU HN. Research on health system responsiveness [J]. Health Research, 2011, 31(5): 368-372. DOI:10.3969/j.issn.1674-6449.2011.05.015.

[7] Zhejiang Provincial Health Commission. Opinions of Zhejiang Provincial Health Commission on Doing a Good Job in Primary Health Care in the Construction of County Medical Communities [A/OL]. (2019-05-05) [2024-04-19]. https://wsjkw.zj.gov.cn/art/2019/5/5/art_{{{1202194}}_{{34434805}}}.html.

[8] UGHASORO MD, OKANYA OC, UZOCHUKWU B, et al. An exploratory study of patients' perceptions of responsiveness of tertiary health-care services in Southeast Nigeria: a hospital-based cross-sectional study [J]. Niger J Clin Pract, 2017, 20(3): 267-273. DOI:10.4103/1119-3077.183255.

[9] LI YQ, ZHANG M, SUN D. Survey on satisfaction of elderly people with community health services in a district of Chengdu City [J]. Chinese Journal of General Practice, 2018, 16(4): 597-599. DOI:10.16766/j.cnki.issn.1674-4152.000166.

[10] LAMARCHE PA, PINEAULT R, HAGGERTY J, et al. The experience of primary health care users: a rural-urban paradox [J]. Can J Rural Med, 2010, 15(2): 61-66.

[11] STEWART WILLIAMS J, MYLÉUS A, CHATTERJI S, et al. Health systems responsiveness among older adults: findings from the World Health Organization Study on global AGEing and adult health [J]. Glob Public Health, 2020, 15(7): 999-1015. DOI:10.1080/17441692.2020.1742365.

[12] LIAN L, CHEN JY, WANG XX, et al. Current status and countermeasures of primary care physicians'medical service capacity in China [J]. Chinese General Practice, 2023, 26(34): 4246-4253. DOI:10.12114/j.issn.1007-9572.2023.0289.

[13] DAI J, LI YN, LI W. Analysis of health service utilization and influencing factors among urban and rural residents in Kunming [J]. Chinese Journal of Health Education, 2020, 36(1): 78-81. DOI:10.16168/j.cnki.issn.1002-9982.2020.01.018.

[14] ALAVI M, KHODAIE ARDAKANI MR, MORADI-LAKEH M, et al. Responsiveness of physical rehabilitation centers in capital of Iran: disparities and related determinants in public and private sectors [J]. Front Public Health, 2018, 6: 317. DOI:10.3389/fpubh.2018.00317.

[15] AFIFI S, ALIZADEH BAHMANI AH, ZAREI L, et al. Assessing the performance of community pharmacies in Iran by measuring responsiveness to non-medical needs: an application of WHO responsiveness framework [J]. J Res Pharm Pract, 2021, 10(2): 59-64. DOI:10.4103/jrpp.JRPP_{{{21}}_{{23}}}.

[16] MOHAMMED S, BERMEJO JL, SOUARES A, et al. Assessing responsiveness of health care services within a health insurance scheme in Nigeria: users' perspectives [J]. BMC Health Serv Res, 2013, 13: 502. DOI:10.1186/1472-6963-13-502.

[17] WANG S, JIANG RS, GUO Q. Analysis of influencing factors on patient satisfaction with community health services [J]. Chinese Rural Health Service Administration, 2006, 26(11): 9-11. DOI:10.3969/j.issn.1005-5916.2006.11.003.

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Note: Figure translations are in progress. See original paper for figures.