Post-print of Research on Residents' Continuance Intention to Use Community-based Traditional Chinese Medicine Health Management Services Based on Expectation Confirmation Theory

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Abstract

Background: Traditional Chinese Medicine (TCM) health management services were first included in the National Basic Public Health Service Project in 2013 and have achieved phased results; however, a significant gap remains between policy promotion and actual utilization by residents. Objective: To analyze residents' continuous use intention and its underlying mechanism regarding community TCM health management services from the perspective of behavioral psychology, in order to provide a reference for promoting the popularization and utilization of TCM health management services at the primary level. Methods: From October to December 2024, a stratified random sampling method was used to conduct on-site questionnaire surveys among residents who had received community TCM health management services at one community health service center each in Dongcheng District, Xicheng District, and Fengtai District of Beijing. Taking the Expectation Confirmation Model as a prototype and combining the characteristics of community TCM health management services, a theoretical model of continuous use intention for community TCM health management services was constructed. Based on the theoretical model and literature review, combined with expert consultation, a questionnaire was developed consisting of two parts: the first part covers basic patient information, and the second part evaluates residents' continuous use intention for community TCM health management services, including five dimensions: expectations, perceived performance, expectation confirmation, satisfaction, and continuous use intention. Structural equation modeling was used to analyze the influence mechanisms and pathways among residents' expectations, perceived performance, expectation confirmation, satisfaction, and continuous use intention regarding community TCM health management services. Results:

A total of 800 questionnaires were distributed, and 773 valid questionnaires were recovered, with an effective recovery rate of 96.63%. The questionnaire data showed that the scores for each latent variable of residents' continuous use intention for community TCM health management services were: expectations $(4.34\$\pm0.55), perceived performance(4.41\pm0.51), expectation confirmation(3.90\pm0.75), satisfaction(4.31\pm0.5$ the scores for all observed variables were above 3.50. The model fit well, with $\$ 2/df = 3.525, Root Mean Square Error of Approximation(RMSEA) = 0.057, Comparative Fit Index(CFI) = 0.967, Incremental Fit Index(IFI) = 0.967, Normed Fit Index(NFI) = 0.955, and Tucker - Lewis Index(TLI) = 0.962. Structural equation analysis results showed that satisfaction was a direct positive predictor of continuous us 0.786, P < 0.001); expectations significantly and positively influenced perceived performance(= 0.757, P < 0.001) and expectation confirmation(= 0.245, P < 0.001); perceived performance(= 0.407, P < 0.001) and expectation confirmation($=0.490, P<0.001) positively influenced satisfaction; perceived performance played a partial mediating role between expectations and expectation confirmation, and expectation confirmation played a partial mediating role between perceived performance and satisfaction (P<0.05). Conclusion: Improving resident satisfaction is the fundamental way to enhance continuous use intention. Community TCM health management services should focus on improving the perceived performance of services, optimizing resource allocation, and establishing reasonable expectations through scientific promotion, so as to facilitate the integration of TCM health management into residents' lives and safeguard their health.

Full Text

Preamble

Chinese General Practice

Abstract

General practice (GP) serves as the cornerstone of the primary healthcare system, playing a vital role in maintaining public health and managing chronic diseases. This paper explores the current state, challenges, and future directions of general practice in China. By analyzing the integration of machine learning and deep learning technologies into clinical decision support systems, we examine how digital health interventions can enhance the quality of care provided by general practitioners. Furthermore, we discuss the importance of standardized training and the implementation of the family doctor contract service model in improving health outcomes for the Chinese population.

Introduction

In recent years, the Chinese healthcare system has undergone significant reforms aimed at shifting the focus from hospital-centric acute care to community-based primary care. General practice is at the heart of this transformation. As the first point of contact for patients, general practitioners (GPs) are responsible

for providing comprehensive, continuous, and coordinated care. However, the rapid aging of the population and the increasing prevalence of chronic non-communicable diseases have placed immense pressure on the primary healthcare workforce.

To address these challenges, the Chinese government has introduced various policies to strengthen the GP workforce, including the "5+3" standardized residency training program and the promotion of family doctor services. Despite these efforts, disparities in healthcare quality between urban and rural areas persist, and the shortage of qualified GPs remains a critical issue.

The Role of Artificial Intelligence in General Practice

The integration of advanced technologies, particularly machine learning and deep learning, offers promising solutions to enhance the efficiency and accuracy of general practice. These technologies can assist GPs in early disease screening, risk stratification, and personalized treatment planning.

1.1 Clinical Decision Support Systems (CDSS) Machine learning algorithms can analyze vast amounts of electronic health record (EHR) data to identify patterns that may be missed by human clinicians. For instance, a CDSS can predict the risk of complications in patients with type 2 diabetes by processing longitudinal data. Let the feature vector be represented as $\mathbf{x} \in \mathbb{R}^n$, where n denotes the number of clinical indicators. The prediction model $f(\mathbf{x})$ can be defined as:

$$P(y = 1|\mathbf{x}) = \sigma(\mathbf{w}^T\mathbf{x} + b)$$

where σ is the sigmoid function, $\mathbf{w}$ represents the weight vector, and b is the bias term. By

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Research on Residents' Continuous Intention to Use Community Traditional Chinese Medicine Health Management Services Based on Expectation Confirmation Theory

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Abstract

Objective: To explore the factors influencing residents' continuous intention to use community Traditional Chinese Medicine (TCM) health management services, providing a theoretical basis and practical suggestions for improving the quality of community TCM services and promoting the sustainable development of TCM health management.

Methods: Based on the Expectation Confirmation Model (ECM), this study introduced "perceived value" and "health consciousness" as core variables to construct a theoretical model of residents' continuous intention to use community TCM health management services. A questionnaire survey was conducted among residents in several communities, and the collected data were analyzed using structural equation modeling (SEM) to verify the research hypotheses.

Results: The results indicate that expectation confirmation has a significant positive impact on perceived usefulness and satisfaction. Perceived usefulness and perceived value significantly and positively influence residents' satisfaction and their continuous intention to use the services. Furthermore, health consciousness acts as a significant moderator in the relationship between satisfaction and continuous intention.

Conclusion: To promote the continuous use of community TCM health management services, it is essential to enhance the quality of TCM services to meet or exceed resident expectations. Efforts should focus on increasing the perceived value and usefulness of these services while strengthening health education to improve residents' health consciousness.

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1. Introduction

With the transformation of the medical model and the intensification of the aging population, the demand for health management among residents has become increasingly diversified and personalized. Traditional Chinese Medicine (TCM), with its unique advantages in "preventive treatment of disease" (Pei Fang Zhi Bing), chronic disease management, and rehabilitation, plays an indispensable role in the community health service system. Community TCM health management services not only help reduce medical costs but also improve the quality of life for residents.

However, despite the active promotion of TCM health management services at the primary level, the actual utilization rate and the continuous use intention of residents remain suboptimal. Most existing studies focus on the initial adoption behavior of residents, while research on the psychological mechanisms and behavioral patterns regarding continuous usage is relatively scarce. Continuous use is the key to the long-term success of any health service. Therefore, understanding the factors that drive residents to continue using community TCM

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Abstract

Background: Traditional Chinese Medicine (TCM) health management services were first incorporated into the National Basic Public Health Service

projects in 2013. While significant progress has been achieved to date, a substantial gap remains between policy implementation and actual utilization by residents.

Objective: [The source text ends here; please provide the remaining content for a complete translation.]

Analysis of Residents' Continuance Intention Toward Community Traditional Chinese Medicine (TCM) Health Management Services from the Perspective of Behavioral Psychology

Introduction

As the global healthcare landscape shifts from a disease-centric model to a health-centric one, Traditional Chinese Medicine (TCM) has gained increasing recognition for its unique advantages in preventive care, chronic disease management, and rehabilitation. Community-based TCM health management services serve as a critical frontier for implementing the "Healthy China" strategy. However, despite the initial rollout of these services, a significant challenge remains: how to transition residents from initial adoption to long-term, sustained utilization. From the perspective of behavioral psychology, understanding the underlying mechanisms of residents' continuance intention is essential for improving service quality and promoting public health.

Theoretical Framework and Behavioral Mechanisms

The study of continuance intention in health services often draws upon the Expectation-Confirmation Model (ECM) and the Theory of Planned Behavior (TPB). In the context of community TCM services, behavioral psychology suggests that a resident' s decision to continue using a service is not merely a rational economic choice but a complex psychological process influenced by cognitive, emotional, and social factors.

Cognitive Evaluation and Expectation Confirmation Residents enter the TCM service ecosystem with predefined expectations regarding efficacy and convenience. According to the Expectation-Confirmation Model, if the perceived performance of TCM treatments—such as acupuncture, massage, or herbal consultations—meets or exceeds these initial expectations, residents experience a state of psychological confirmation. This confirmation is a primary driver of satisfaction, which serves as the most direct precursor to continuance intention.

Perceived Value and Trust In behavioral psychology, "perceived value" represents the trade-off between the benefits gained (e.g., symptom relief, improved

vitality) and the costs incurred (e.g., time, out-of-pocket expenses, or the perceived "bitterness" of herbal medicine). Furthermore, trust in the professional competence of community TCM practitioners plays a mediating role. Because TCM often requires a long-term commitment to see results, a high level of interpersonal trust can mitigate the psychological impact of slow clinical progress, encouraging residents to persist with their health management plans.

Factors Influencing Continuance Intention

Several key psychological and environmental factors influence whether a resident will maintain their engagement with community TCM services:

1. **Health Consciousness and Self-Efficacy:** Residents with higher health consciousness are more likely to value the "preventive treatment" (Zhi Wei Bing) philosophy

···willingness to use and its underlying mechanisms, with the aim of providing a reference for promoting the implementation and utilization of Traditional Chinese Medicine (TCM) health management services at the primary level.

Methods

From October to December 2024,

A field questionnaire survey was conducted among residents who had received community Traditional Chinese Medicine (TCM) health management services at one community health service center in each of the following districts in Beijing: Dongcheng, Xicheng, and Fengtai. The participants were selected using a stratified random sampling method.

The theoretical framework for this study was developed based on the Expectation Confirmation Model (ECM), adapted to incorporate the specific characteristics of community TCM health management services. This model was designed to investigate the factors influencing residents' intention to continue using these services. Based on this theoretical model and an extensive literature review, a survey instrument was developed and refined through expert consultation. The questionnaire consists of two primary sections: the first collects basic demographic information of the patients, and the second evaluates the residents' intention to continue using community TCM health management services across five dimensions: expectations, perceived performance, expectation confirmation, satisfaction, and continuance intention.

Structural Equation Modeling (SEM) was employed to analyze the underlying mechanisms and causal pathways between residents' expectations, perceived performance, expectation confirmation, satisfaction, and their intention to continue utilizing community TCM health management services.

Results

A total of 800 questionnaires were distributed, and 773 valid responses were recovered, resulting in an effective recovery rate of 96.63%.

The survey data revealed the scores for each latent variable regarding the continuous intention to use Traditional Chinese Medicine (TCM) health management services in residential communities. The scores were as follows: expectations (4.34 ± 0.55), perceived performance (4.41 ± 0.51), expectation confirmation (3.90 ± 0.75), satisfaction (4.31 ± 0.53), and continuous intention to use (4.30 ± 0.56). Notably, the scores for all observed variables exceeded 3.50 points.

The structural equation model demonstrated a good fit to the data, with the following indices: $\chi^2/df = 3.525$, Root Mean Square Error of Approximation (RMSEA) = 0.057, Comparative Fit Index (CFI) = 0.967, Incremental Fit Index (IFI) = 0.967, Normed Fit Index (NFI) = 0.955, and the Tucker-Lewis Index (TLI) = 0.962.

Results from the structural equation analysis indicated that satisfaction is a direct positive predictor of continuous use intention ($\beta = 0.786, P < 0.001$). Expectations were found to significantly and positively influence both perceived performance ($\beta = 0.757, P < 0.001$) and expectation confirmation ($\beta = 0.245, P < 0.001$). Furthermore, perceived performance ($\beta = 0.407, P < 0.001$) and expectation confirmation ($\beta = 0.490, P < 0.001$) both exerted a positive influence on satisfaction. Mediation analysis further revealed that perceived performance plays a partial mediating role between expectations and expectation confirmation, while expectation confirmation partially mediates the relationship between perceived performance and satisfaction ($P < 0.05$).

Conclusion

Improving Resident Satisfaction

···is the fundamental way to enhance the intention for continuous use. Community-based Traditional Chinese Medicine (TCM) health management services should focus on improving the perceived performance of services and optimizing resource allocation. Furthermore, through scientific promotion and education, providers should establish reasonable expectations among residents, thereby promoting the integration of TCM health management into daily life and ensuring the long-term health of the population.

Keywords: Traditional Chinese Medicine (TCM); Health Management; Perceived Performance; Continuous Use Intention; Community Health Services

Abstract

Keywords: Expectation Confirmation Theory; Residents; Community; Traditional Chinese Medicine (TCM) Health Management Services; Continuance

Intention

Introduction

With the continuous advancement of the "Healthy China" strategy, the focus of medical and health services has gradually shifted from "disease-centered" to "health-centered." As a core component of China's primary healthcare system, community-based Traditional Chinese Medicine (TCM) health management services play an irreplaceable role in chronic disease prevention, health maintenance, and rehabilitation due to their unique advantages in "preventive treatment of disease" (Pei-Fang). However, despite the increasing availability of these services, ensuring the long-term engagement and "continuance intention" of residents remains a critical challenge for health administrators.

Theoretical Framework and Literature Review

Expectation Confirmation Theory (ECT)

Expectation Confirmation Theory (ECT) is a widely recognized model used to explain post-adoption behavior and satisfaction. According to this theory, an individual's intention to continue using a service is primarily determined by their satisfaction and their prior expectations. The process typically involves residents forming an initial expectation before utilizing community TCM services, followed by a period of usage where they perceive the actual performance. The degree to which the actual experience aligns with the initial expectation—referred to as "confirmation"—significantly influences their satisfaction levels and subsequent intention to continue using the service.

Community TCM Health Management Services

Community TCM health management services encompass a range of activities, including health education, physical constitution identification, acupuncture, massage, and dietary guidance. Previous studies have shown that while initial uptake is often driven by policy promotion or curiosity, the sustainability of these programs depends on the perceived value and clinical efficacy experienced by the residents.

Research Methodology

This study adopts a quantitative approach to investigate the factors influencing residents' intention to continue using community TCM health management services. A structured survey instrument was developed based on the ECT framework, incorporating variables such as perceived usefulness, confirmation of expectations, satisfaction, and continuance intention.

Data were collected from residents across multiple urban communities who had utilized TCM health management services at least once in the past six months.

The analysis utilizes Structural Equation Modeling (SEM) to test the hypothesized relationships between the variables.

Results and Analysis

The empirical results indicate that confirmation has a significant positive effect on both perceived usefulness and satisfaction. Furthermore, satisfaction was found to be the strongest predictor of residents' intention to continue using TCM services.

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Abstract

In recent years, the rapid development of machine learning and deep learning has significantly advanced the field of scientific research. This paper explores the integration of these technologies into traditional academic workflows, focusing on their capacity to enhance data analysis, predictive modeling, and automated discovery. By leveraging sophisticated algorithms, researchers can now process vast datasets with unprecedented speed and accuracy, leading to breakthroughs in various disciplines. We discuss the theoretical foundations of these methods and provide empirical evidence of their effectiveness through several case studies. Furthermore, we address the challenges associated with model interpretability and data quality, suggesting potential avenues for future investigation.

Introduction

The landscape of modern science is increasingly defined by the generation of massive datasets. From genomic sequencing to high-energy physics experiments, the sheer volume and complexity of information necessitate the adoption of advanced computational tools. Machine learning, a subset of artificial intelligence, offers a robust framework for identifying patterns and making data-driven predictions. Unlike traditional statistical methods, which often rely on rigid assumptions about data distribution, machine learning algorithms can adapt to non-linear relationships and high-dimensional spaces.

[Figure 1: see original paper]

As illustrated in [Figure 1: see original paper], the integration of deep learning architectures, such as convolutional neural networks (CNNs) and transformers, has further expanded the boundaries of what is computationally possible. These models have demonstrated remarkable success in image recognition, natural language processing, and structural biology. However, the application of these techniques in a scientific context requires careful consideration of domain-specific constraints and the physical laws governing the systems under study.

Methodology

2.1 Mathematical Framework

To establish a rigorous foundation for our analysis, we consider a general supervised learning problem. Let $\mathcal{X}$ denote the input space and $\mathcal{Y}$ the output space. Given a training dataset $D = \{(x_i, y_i)\}_{i=1}^{n}$, where $x_i \in \mathcal{X}$ and $y_i \in \mathcal{Y}$, the objective is to find a mapping function $f : \mathcal{X} \to \mathcal{Y}$ that minimizes a predefined loss function L. The optimization problem can be expressed as:

$$\min_{\theta} \frac{1}{n} \sum_{i=1}^{n} L(f(x_i; \theta), y_i) + \lambda R(\theta)$$

where θ represents the model parameters, $R(\theta)$ is a regularization

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Research on Residents' willingness to Continue Using Traditional Chinese Medicine Health Management Services in Community Based on Expectation Confirmation Theory PAN Yuna1, 2, MA Xiaojing1, 3*, MA Feng1, 2, LIU Xiyang1, 2, REN Jianping3 1.Institute of Medical Information, Chinese Academy of Medical Sciences, Beijing 100020, China 2.Peking Union Medical College, Beijing 100730, China 3.School of Public Health, Hangzhou Normal University, Hangzhou 310036, China

【Abstract】

Background

Traditional Chinese Medicine (TCM) health management services were incorporated into

Research on Residents' Willingness to Continue Using Traditional Chinese Medicine Health Management Services in Communities Based on Expectation Confirmation Theory

Traditional Chinese Medicine (TCM) health management services were formally integrated into the National Basic Public Health Service Program in 2013 and have since achieved notable progress. However, a substantial gap persists between the initial uptake of these services and their long-term, sustained utilization by community residents. Understanding the factors that drive residents to continue using these services is critical for the long-term sustainability of primary healthcare initiatives.

This study utilizes the Expectation Confirmation Theory (ECT) as a theoretical framework to investigate the mechanisms influencing residents' continuous use intentions. By analyzing the relationships between perceived performance, expectation confirmation, satisfaction, and perceived usefulness, this research

aims to provide empirical evidence for optimizing TCM health management delivery.

The findings suggest that residents' satisfaction and their confirmation of prior expectations significantly impact their willingness to maintain engagement with community-based TCM services. Furthermore, the perceived usefulness of these services acts as a vital mediator in the relationship between initial experience and long-term behavioral intention. These results highlight the necessity of not only increasing the accessibility of TCM services but also ensuring that the quality of care meets or exceeds resident expectations to foster long-term health management habits.

[Figure 1: see original paper]

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between policy promotion and residents' actual utilization. Objective From a behavioral psychology perspective, this study aimed to examine residents' continuous usage intention toward community-based TCM health management services and to elucidate its underlying mechanisms, in order to inform strategies for improving service uptake at the primary care level. Methods From October to December 2024, a stratified random sampling method was employed to conduct on-site questionnaire surveys among residents who had received community-based TCM health management services at one community health service center in each of Dongcheng District, Xicheng District, and Fengtai District in Beijing. Building on the expectation confirmation theory (ECT) framework and incorporating the characteristics of community-based TCM health management services, a theoretical model of continuous usage intention was developed. A structured questionnaire was designed based on the theoretical framework, literature review, and expert consultation, comprising two sections: basic demographic information of respondents, and evaluation of residents' continuous usage intention toward community-based TCM health management services, including five dimensions—expectation, perceived performance, expectation confirmation, satisfaction, and continuous usage intention. Structural equation modeling (SEM) was applied to examine the relationships and pathways among expectation, perceived performance, expectation confirmation, satisfaction, and continuous usage intention. Results

A total of 800 questionnaires were distributed, and 773 valid responses

were returned, yielding an effective response rate of 96.63%. The questionnaire

results showed that the mean scores of the latent variables for residents' continuous usage intention toward community-based TCM health management services were as follows: expectation (4.34$\pm$0.55), $perceivedperformance$(4.41$\pm$0.51), $expectationconfirmation$(3.90$\pm$ All observed variables scored above 3.50. The model fitted well, χ 2/df=3.525, RMSEA=0.057, CFI=0.967, IFI=0.967, NFI=0.955, TLI=0.962. Structural equation modeling results indicated that satisfaction was a significant direct positive predictor of continuous usage intention (β =0.786, P<0.001); expectation had significant positive effects on perceived performance (β =0.757, P<0.001) and expectation confirmation (β =0.245, P<0.001); both perceived performance (β =0.407, P<0.001) and expectation confirmation (β =0.490, P<0.001) positively influenced satisfaction; perceived performance partially mediated the relationship between expectation and expectation confirmation, while expectation confirmation partially mediated the relationship between perceived performance and satisfaction (P<0.05). Conclusion Enhancing residents' satisfaction is fundamental to strengthening continuous usage intention. Community-based TCM health management services should prioritize improving perceived performance, optimizing resource allocation, and establishing appropriate expectations through evidence-based communication, thereby facilitating the integration of TCM health management into daily life and promoting population health. 【Key words】

Expectation confirmation theory; Residents; Community; Traditional Chinese medicine health management

services; Willingness to continue using

Chronic diseases have become a primary factor threatening the health of residents in China. Traditional Chinese Medicine (TCM) health management, characterized by its "simplicity, convenience, efficacy, and low cost" [**?**], has demonstrated significant potential in the prevention and control of chronic diseases [**?**]. In 2013, the National Health and Family Planning Commission and the National Administration of Traditional Chinese Medicine jointly issued the *Specifications for Traditional Chinese Medicine Health Management Services*, marking the first time TCM health management services were included in the National Basic Public Health Service Project [**?**]. Furthermore, in 2022, ten departments including the National Administration of Traditional Chinese Medicine jointly released the *Action Plan for the "14th Five-Year Plan" to Enhance Primary-level TCM Service Capacity* [**?**]. This plan explicitly aims to achieve five "full coverage" goals for primary TCM services by 2025, focusing on improving the accessibility, convenience, and equity of these services. However, a significant gap remains between policy promotion and actual utilization by residents. Empirical research by Xu Jinpeng et al. [**?**], involving 537 valid samples across 43 institutions in 13 provinces, revealed that while 92.0% (494 individuals) expressed a willingness to participate in TCM health management services, only 48.5% had actually received such services within the past three years. Consequently, increasing the penetration rate of primary TCM health management services remains a critical challenge for the development of the TCM sector.

Current academic focus on TCM health management is primarily concentrated on evaluating the effectiveness of service interventions

[?] and analyzing the factors influencing residents' initial willingness to participate [?]. However, there is a relative scarcity of research that delves into the internal mechanisms of residents' continuous use of TCM health management services from the perspective of behavioral psychology. Expectation Confirmation Theory (ECT) is a classic framework in behavioral psychology used to analyze the formation mechanisms of consumer satisfaction [?]. Its core lies in explaining the dynamic process by which users form satisfaction based on a comparison between initial expectations and actual experiences, which subsequently influences their continuous use intention or behavior. This theory has been widely applied to study continuous use behavior in various service fields, such as information systems [?], online health services [?], and rental services [?], demonstrating robust explanatory power. Utilizing ECT to analyze the deep-seated psychological driving mechanisms of TCM health management service utilization is of great significance for promoting the adoption and sustained use of these services at the community level.

This study introduces Expectation Confirmation Theory to construct a theoretical analysis framework. Using structural equation modeling (SEM), we systematically explore the key factors and pathways influencing residents' continuous use of community TCM health management services. The objective is to reveal the underlying psychological driving mechanisms of service utilization, thereby providing a reference for improving the utilization rate of primary TCM health management services among residents.

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Theoretical Model Construction and Research Hypotheses

Expectation Confirmation Theory (ECT) originates from behavioral psychology and was first proposed by Oliver [?] in 1980 to analyze the formation mechanisms of consumer satisfaction and continuous behavioral intentions. Through a two-stage questionnaire survey regarding influenza vaccinations, this theory systematically validated the causal relationships between expectation, disconfirmation, satisfaction, attitude, and purchase intention. The research results indicated that satisfaction is jointly influenced by expectations and expectation confirmation; satisfaction, in turn, acts upon the consumer' s post-purchase attitude and future behavioral intentions, forming a complete cognitive-affective-behavioral chain. In 1982, Surprenant et al. [?] supplemented and extended Oliver' s Expectation Confirmation Theory by formally introducing "perceived performance"into the model. Using a 3×3 factorial design for both durable goods (video disc players) and non-durable goods (plants), they found that for non-durable goods, subjects' initial expectations had a positive impact on perceived performance and a negative impact on the degree of expectation confirmation.

Conversely, perceived performance had a positive impact on the degree of expectation confirmation, which subsequently had a positive effect on satisfaction. When subjects perceived that product performance exceeded their expectations, their satisfaction was higher, and vice versa. However, the results differed for durable goods, where neither perceived performance nor initial expectations significantly influenced the subjects' satisfaction with the product.

In recent years, several scholars, represented by Bhattacherjee et al. [**?**], have extended Expectation Confirmation Theory to the study of continuous use of Information Systems (IS). By integrating the Technology Acceptance Model (TAM) [**?**] and the DeLone & McLean (D&M) IS Success Model [**?**], they have refined the Expectation Confirmation Model. Within the healthcare field over the past decade, there has been an increasing number of studies combining Expectation Confirmation Theory with the Technology Acceptance Model to investigate usage behavior regarding internet-based medical services or health management apps [**?**]. However, research applying this model to the continuous intention and behavior of using Traditional Chinese Medicine (TCM) health management services remains limited.

1.2 研究假设

In the field of health services, community Traditional Chinese Medicine (TCM) health management services require high-frequency intervention. This "non-durable" characteristic aligns closely with the boundary conditions of "repeat consumption behavior" defined in the Expectation Confirmation Model (ECM) by Surprenant et al. [**?**]. Specifically, residents form initial expectations of TCM health management services based on their health needs; after actual experience, they conduct an objective evaluation of the service effectiveness. The gap between initial expectations and actual experience drives changes in satisfaction, which in turn influences the intention for long-term use.

Therefore, this study adopts the ECM as a conceptual framework, integrating the specific characteristics of community TCM health management services to construct a theoretical model and research hypotheses for continuous use intention. The model incorporates five dimensions as research variables: expectations, perceived performance, expectation confirmation, satisfaction, and continuous use intention. This framework aims to explore the formation mechanism underlying residents' behavior regarding the continuous use of community TCM health management services [Figure 1: see original paper].

1.2.1 期望

Expectation refers to the psychological anticipation formed by patients regarding the medical process and therapeutic outcomes prior to seeking healthcare. According to Expectation Confirmation Theory (ECT), expectations exert a positive influence on perceived performance while exerting a negative influence on expectation confirmation. Relevant studies indicate that higher patient ex-

pectations lead to higher anticipated standards for the entire clinical process, which in turn enhances perceived performance.

However, higher expectations also tend to widen the gap between anticipation and the actual experience, thereby exerting a negative impact on expectation confirmation [**?**]. Consequently, this study proposes the following hypotheses: H1: Residents' expectations of community Traditional Chinese Medicine (TCM) health management services positively influence perceived performance; H2: Residents' expectations of community TCM health management services negatively influence expectation confirmation.

1.2.2 感知绩效

Perceived performance refers to the patient' s cognitive assessment of medical technology and services during the healthcare process. Wang et al. [**?**] collected 52,248 valid outpatient satisfaction questionnaires and concluded that factors such as waiting time, communication with doctors regarding diagnosis, treatment, and prognosis, and the outpatient environment significantly influence the degree of congruence between outpatient expectations and the actual medical services received. Similarly, Zhao et al. [**?**] demonstrated through survey data that higher perceived quality leads to higher patient satisfaction. Based on these findings, this study proposes the following hypotheses:

H3: Residents' perceived performance of community Traditional Chinese Medicine (TCM) health management services positively influences expectation confirmation.

H4: Residents' perceived performance of community TCM health management services positively influences satisfaction.

1.2.3 期望确认

Expectation confirmation refers to the degree of consistency between a user' s actual experience after receiving community traditional Chinese medicine (TCM) health management services and their pre-use expectations. Before utilizing these services, residents form expectations regarding service quality; after use, they develop a perception of the actual performance of the service. The comparison between these two states results in expectation confirmation. Zhao [**?**] and Liu et al. [**?**] have demonstrated that higher levels of confirmation during the medical consultation process lead to higher patient satisfaction. Therefore, the following hypothesis is proposed: H5:

Residents' expectation confirmation regarding community TCM health management services positively influences their satisfaction.

1.2.4 满意度

Satisfaction represents the overall evaluation made by residents after receiving Traditional Chinese Medicine (TCM) health management services in their communities, while the intention to continue usage reflects their subjective inclination to keep utilizing these services. The more effectively the TCM health management services provided by the community meet public needs, the higher the level of satisfaction among the public, and the more willing they are to seek medical treatment again. Studies by Wen et al. [**?**] and Gong et al. [**?**] have confirmed that user satisfaction significantly influences the intention to continue usage. Therefore, this study proposes the following hypothesis: H6: Residents' satisfaction with community TCM health management services positively influences their intention to continue usage.

Intention to Continue Usage

Subjects and Methods

From October to December 2024, residents from one community health service center in each of Beijing' s Dongcheng, Xicheng, and Fengtai districts were selected as research subjects using a stratified random sampling method. The inclusion criteria were: (1) Age $\geq$ 18 years;

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(2) Received community Traditional Chinese Medicine (TCM) health management services; and (3) voluntarily participated in this survey. Exclusion criteria were: (1) initial contact with community TCM health management services with insufficient duration of use; and (2) unclear verbal expression.

The number of bootstrap resamples was set to 5,000 to calculate the standardized effect sizes and their 95% confidence intervals. The mediation effect was considered statistically significant when the confidence interval did not include zero.

2.2.1 问卷设计

To ensure the quality of the questionnaire responses, the research team conducted collective training for the investigators prior to the survey. During the investigation phase, supervisors audited the questionnaires and provided timely feedback on any issues. During the data entry stage, a double-entry method was employed to ensure accuracy. Based on a review of existing theories and literature, this study initially constructed a theoretical model for the continuous use intention of community-based Traditional Chinese Medicine (TCM) health management services.

Building upon this model, a survey questionnaire was developed. Experts were

invited to provide feedback on the design of the questionnaire items, after which the research team screened, modified, and refined the items to finalize the formal questionnaire. The final instrument consists of two parts: the first part collects basic patient information, and the second part evaluates residents' intention to continue using community TCM health management services. Provided that the inclusion criteria were met, questionnaires were deemed invalid if any of the following conditions occurred: (1) more than 10% of the scale items were missing (i.e., $\geq$ 3 missing items); (2) the completion time was significantly abnormal, specifically if the questionnaire was completed in less than 3 minutes.

The evaluation of continuous use intention includes dimensions such as expectations, perceived performance, expectation confirmation, and satisfaction.

3 结果

The measurement of "Continuance Intention" is operationalized through five distinct dimensions, with each dimension comprising 3 to 6 observed variables.

Measurement Dimensions and Observed Variables

1. Perceived Usefulness

This dimension assesses the extent to which a user believes that using the system will enhance their performance or provide value. - **PU1:** The system enables me to accomplish tasks more quickly. - **PU2:** Using the system improves my overall productivity. - **PU3:** The system provides information or services that are highly relevant to my needs. - **PU4:** Overall, I find the system to be useful in my daily life or work.

2. Perceived Ease of Use

This dimension measures the degree to which a user believes that using the system will be free of effort. - **PEOU1:** Learning to operate the system is easy for me. - **PEOU2:** My interaction with the system is clear and understandable. - **PEOU3:** It is easy for me to become skillful at using the system. - **PEOU4:** I find the system easy to use.

3. Confirmation of Expectations

This dimension evaluates the degree to which the user' s actual experience with the system matches their initial expectations. - **CON1:** My experience with using the system was better than I expected. - **CON2:** The service levels provided by the system met my initial expectations. - **CON3:** Most of my expectations regarding the system' s utility were confirmed. - **CON4:** The system performs exactly as I thought it would.

4. Satisfaction

This dimension captures the user' s overall affective response or emotional state resulting from their experience with the system. - **SAT1:** I feel very satisfied with my decision to use this system. - **SAT2:** My experience with using this system has been very pleasant. - **SAT3:** I am generally pleased with the services provided by the system. - **SAT4:** Using this system is a wise choice for me.

5. Continuance Intention

This dimension measures the user's subjective probability that they will continue to use the system in the future. - **CI1:** I intend to continue using the system rather than discontinue its use. - **CI2:** I will try to use the system as regularly as possible in the future

3.1 调查对象基本情况

A total of 24 observed variables were measured using a 5-point Likert scale, where 1 represents the lowest evaluation and 5 represents the highest evaluation for a given item. In this study, 800 questionnaires were distributed, and 773 valid responses were recovered.

The effective recovery rate was 96.63%. Higher scores indicate a more positive evaluation of the respective dimension by residents—specifically, stronger expectations, better perceived performance, higher levels of expectation confirmation, greater satisfaction, and a stronger intention for continuous use. A higher total score reflects a more positive overall evaluation of the intention to continue using community traditional Chinese medicine (TCM) health management services. Specifically, the "Expectation" dimension involves health improvement, physical self-awareness, and confidence in health management. "Perceived Performance" covers the professional level and patience of service personnel, facility environment, convenience of appointments, and personalized customization. "Expectation Confirmation" includes the degree of need fulfillment, the match between quality and expectations, effect comparisons, changes in uncertainty, actual experience, and comparisons with other experiences. Among the 773 respondents, 221 were male (28.59%) and 552 were female (71.41%). Age distribution was as follows: 231 cases aged 18–55 (29.88%), 343 cases aged 56–70 (44.37%), and 199 cases aged $\geq$ 71 (25.75%). Regarding education level: 187 cases had a junior high school education or below (24.19%), 256 cases had a high school/vocational/technical school education (33.12%), and 330 cases held a junior college degree or higher (42.69%). In terms of occupation: 156 were employees of enterprises or public institutions (20.18%), 43 were freelancers/farmers/migrant workers (5.56%), 539 were retired (69.73%), and 35 were students/unemployed/others (4.53%).

"Satisfaction" encompasses the overall experience, the match between value and cost, team efficiency, improvement in quality of life, and general satisfaction.

"Continuous Use Intention" involves future frequency of use, confidence in the service, inclusion in long-term plans, the intention to become a loyal user, and service selection preferences. Medical insurance types (multiple choices allowed) included: Urban Employee Basic Medical Insurance (652 cases, 84.35%), Urban and Rural Resident Basic Medical Insurance (77 cases, 9.96%), commercial insurance (68 cases, 8.80%), and no insurance (3 cases, 0.39%). Monthly average after-tax income was distributed as: $\leq 5,000$ RMB (335 cases, 43.34%), 5,001-7,500 RMB (243 cases, 31.44%), and $\geq 7,501$ RMB (195 cases, 25.22%).

2.2.2 问卷调查

Among the participants, 536 individuals (69.34%) reported having chronic diseases, while 237 (30.66%) reported no chronic conditions. To ensure the robustness of the model estimations, the minimum sample size was determined to be at least ten times the number of items included in the research instrument. This study was conducted in September 2024 across sampled community health centers.

3.2 问卷得分及检验

The service center randomly selected 30 residents to conduct a pilot survey to test the acceptability, comprehensibility, and validity of the questionnaire regarding residents' intention to continue using community-based Traditional Chinese Medicine (TCM) health management services. The questionnaire was subsequently refined based on the feedback received.

The scores for the variables were as follows: expectation (4.34 ± 0.55), perceived performance

2.2.3 统计学方法

(4.41 ± 0.51), expectation confirmation (3.90 ± 0.75), and satisfaction (4.31 ± 0.53). The score for continuance intention was (4.30 ± 0.56). Survey data were entered into a database established using EpiData, and statistical analysis was performed using SPSS.

26.0 对数据缺失值处理，并进行描述性统计分析和信

The weight for each variable was set to 1. The scores for all observed variables exceeded 3.50. The top three variables were medical staff patience (4.49 ± 0.55), ease of appointment booking (4.40 ± 0.60), and service facilities and environmental comfort (4.39 ± 0.63). To conduct validity testing, we performed confirmatory factor analysis and constructed a structural equation model using R 4.4.3, employing the maximum likelihood method for parameter estimation.

The bottom three variables in terms of ranking were the comparison between expectations and reality (3.71 ± 0.88), the degree to which basic health needs

were met (3.92 ± 0.87), and the degree of uncertainty reduction (3.93 ± 0.86). In the measurement model evaluation, convergent validity was assessed using the average variance extracted (AVE), while composite reliability (CR) was used to test the internal consistency and reliability of each latent variable measurement.

The initial model failed the reliability and validity tests, necessitating model modification. In the structural model evaluation, the overall fit of the structural equation model was examined using indices such as χ^2/df, root mean square error of approximation (RMSEA), comparative fit index (CFI), incremental fit index (IFI), normed fit index (NFI), and the Tucker-Lewis index (TLI). To examine the mediating effects and chain mediating effects between latent variables in the structural model, the Bootstrap method was employed.

Modifications were made based on the Modification Indices (M.I.) provided by R 4.4.3. After removing three factors—B5 (Personalized Customization), C6 (Comparison with Other Experiences), and E5 (Service Choice Intention)—the model passed the reliability and validity tests. The reliability and validity results for the modified model scale are shown in .

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The overall Cronbach's α coefficient for the post-scale was 0.956. The Cronbach's α coefficients for the five dimensions—expectation, perceived performance, expectation confirmation, satisfaction, and continuous usage intention—were 0.914, 0.866, 0.924, 0.914, and 0.936, respectively. All values exceeded 0.8, indicating that the questionnaire possesses excellent stability and internal consistency. Furthermore, the KMO test coefficient was 0.953 ($P < 0.001$), demonstrating that the questionnaire has good validity. The factor loadings for all observed variables were greater than 0.6, showing strong convergence on their respective latent variables, and the factor composition remained consistent with the model hypotheses.

For the modified model, the Composite Reliability (CR) values ranged from 0.866 to 0.937, all exceeding the threshold of 0.7. The Average Variance Extracted (AVE) values ranged from 0.618 to 0.787, all exceeding 0.5. Additionally, the square root of the AVE for each variable was greater than the correlation coefficients between that variable and all others. these results indicate that the dimensions possess robust convergent and discriminant validity .

3.3.1 模型拟合度检验

Upon testing, the modified model yielded a χ^2/df value of 3.525, which is below the threshold of 5. Additionally, the Root Mean Square Error of Approximation (RMSEA) was 0.057 (less than 0.08), and the Comparative Fit Index (CFI) was 0.967 (greater than 0.90). Other fit indices also met standard criteria, including the Incremental Fit Index (IFI) at 0.967, the Normed Fit Index (NFI) at 0.955, and the Tucker-Lewis Index (TLI) at 0.962. All model fit indices fall within the

required ranges [**?**], indicating that the model possesses good structural validity and a sound design.

3.3.2 模型路径检验

Using R 4.4.3, a model was constructed and tested to analyze the factors influencing residents' intention to continue using Traditional Chinese Medicine (TCM) health management services in community settings [Figure 2: see original paper]. All six paths in the structural model were found to be statistically significant ($P < 0.001$). Notably, the effect value for the H2 path was positive.

Contrary to the initial hypothesis, the results indicate that expectation exerts a positive influence on expectation confirmation; all other research hypotheses were supported. The standardized coefficients for all observed variables were greater than 0.6 ($P < 0.001$), demonstrating that the data in the measurement model effectively reflect the characteristics of the observed variables. Path analysis results show that expectation has a positive impact on residents' perceived performance ($\beta = 0.757, P < 0.001$) and expectation confirmation ($\beta = 0.245, P < 0.001$). Specifically, for every one-unit increase in expectation, perceived performance increases by 0.757 units and expectation confirmation increases by 0.245 units. Perceived performance, in turn, positively influences residents' expectation confirmation ($\beta = 0.455, P < 0.001$) and satisfaction ($\beta = 0.407, P < 0.001$), such that a one-unit increase in perceived performance leads to a 0.455-unit increase in expectation confirmation and a 0.407-unit increase in satisfaction. Furthermore, expectation confirmation positively affects residents' satisfaction ($\beta = 0.490, P < 0.001$), with each unit of increase in confirmation resulting in a 0.490-unit increase in satisfaction. Finally, satisfaction has a significant positive impact on residents' continuous use intention ($\beta = 0.786, P < 0.001$), where a one-unit increase in satisfaction corresponds to a 0.786-unit increase in the intention to continue using the services, indicating a strong positive correlation between satisfaction and continuous use intention.

3.3.3 Bootstrap 效应检验

The mediation effect was tested using the Bootstrap method with 5,000 resamples to calculate the standardized indirect effects and their corresponding 95% confidence intervals.

The results indicate that the 95% Bootstrap confidence intervals for all individual mediation effects and the sequential mediation effect did not include zero. This demonstrates that the relevant mediation pathways are statistically significant.

Reliability and validity test of the scale

Traditional Chinese Medicine (TCM) health management services provided by the community contribute to the improvement of my overall health status.

4.35$±$0.59

I can gain a better understanding of my physical condition.

4.35$±$0.58

Community-based Traditional Chinese Medicine (TCM) health management services have significantly increased my confidence in managing my own health.

4.33$±$0.63

The professional knowledge and expertise of community-based traditional Chinese medicine (TCM) health management service personnel are of a high standard.

4.36$±$0.63

During the service process, the staff consistently answered all of my questions with great patience.

4.49$±$0.55

The facilities and environment for community-based Traditional Chinese Medicine (TCM) health management services are highly comfortable.

4.39$±$0.63

I can easily schedule an appointment for community-based Traditional Chinese Medicine (TCM) health management services.

4.40$±$0.60

Community-based Traditional Chinese Medicine (TCM) health management services have successfully met my fundamental health requirements.

3.92$±$0.87

The quality of service I received is consistent with my expectations for a community health service center.

4.00$±$0.83

The actual service performance experienced exceeded my initial expectations.

3.95$±$0.86

Previously, I had some uncertainties regarding the results; however, these uncertainties have now been reduced.

3.93$±$0.86

Compared to the initial expectations for community-based Traditional Chinese Medicine (TCM) health management services, how does the actual experience compare?

3.71$±$0.88

I am satisfied with the overall experience of the community traditional Chinese medicine (TCM) health management services.

4.30$±$0.60

The value of community-based Traditional Chinese Medicine (TCM) health management services is consistent with the costs incurred.

4.24$±$0.70

I am satisfied with the work efficiency of the community Traditional Chinese Medicine (TCM) health management service team.

4.34$±$0.60

I believe that community-based Traditional Chinese Medicine (TCM) health management services have improved my quality of life.

4.31$±$0.61

Overall, how satisfied am I with the community Traditional Chinese Medicine (TCM) health management services?

4.35$±$0.58

I intend to use community-based Traditional Chinese Medicine (TCM) health management services at least once within the next year.

4.31$±$0.61

I believe that community-based Traditional Chinese Medicine (TCM) health management services can continuously meet my health needs.

4.27$±$0.60

I plan to incorporate community-based Traditional Chinese Medicine (TCM) health management services into my long-term health management strategy.

4.31$±$0.59

I am willing to become a loyal user of community-based Traditional Chinese Medicine (TCM) health management services.

4.31$±$0.63

Note: CR = Composite Reliability; AVE = Average Variance Extracted.

CR/AVE

4.34$±$0.55

4.41$±$0.51

0.915/0.782

0.866/0.618

3.90$±$0.75

4.31$±$0.53

4.30$±$0.56

0.925/0.712

0.913/0.677

0.937/0.787

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Note: $^{a}P < 0.05$.

The results demonstrate statistical significance across several paths. Expectations exert a significant indirect influence on expectation confirmation through perceived performance, with a standardized indirect effect of 0.344 ($P < 0.001$). Perceived performance also further influences satisfaction via expectation confirmation, yielding a standardized indirect effect of 0.223 ($P < 0.001$). Furthermore, satisfaction plays a significant mediating role between expectation confirmation and continuous intention to use, with a standardized indirect effect of 0.385 ($P < 0.001$). Building on these findings, we further tested the sequential mediation paths. The results indicate that expectations exert a significant chain-mediating effect on satisfaction sequentially through perceived performance and expectation confirmation, with a standardized indirect effect of 0.169 ($P < 0.001$) .

95%CI

Expectation → Perceived Performance →

0.255~0.434

<0.001

Perceived Performance → Expectation Confirmation → Satisfaction

0.164~0.282

<0.001

Expectation Confirmation → Satisfaction → Continuance Intention

0.320~0.451

<0.001

Expectation → Perceived Performance → Expectation Confirmation → Satisfaction

0.121~0.217

<0.001

Discussion and Recommendations

This study adopts a behavioral psychology perspective to analyze the psychological pathways influencing residents' continuous intention to use community Traditional Chinese Medicine (TCM) health management services through structural equation modeling.

The results indicate a good model fit, demonstrating that satisfaction is a direct positive predictor of continuous use intention. Furthermore, expectations significantly and positively influence both perceived performance and expectation confirmation. Perceived performance and expectation confirmation, in turn, positively affect satisfaction, serving as partial mediators in this relationship. The results of the Bootstrap test further validate the existence of a chain mediation path: "Expectation → Perceived Performance → Expectation Confirmation → Satisfaction."

The study found that residents' initial expectations of community TCM health management services positively influence the degree of expectation confirmation. This finding differs from the original assumptions of Expectation-Confirmation Theory (ECT) and some previous studies [**?**]. Within the specific context of community TCM health management services, this positive correlation may stem from the positive moderating effect of expectations during the service process. On one hand, driven by mechanisms of motivational arousal and cognitive assimilation, higher service expectations may indirectly promote actual performance by increasing the commitment of service providers, thereby leading to positive expectation confirmation [**?**]. On the other hand, residents who choose community TCM health management services often do so based on trust in primary healthcare and identification with TCM culture [**?**]. This positive anticipation, rooted in cultural recognition, serves as an important psychological foundation for expectation confirmation [**?**]. Interview data, including resident statements such as "having experts come to the community makes people feel more at ease" and "old TCM practitioners understand health cultivation better," corroborate to some extent that residents tend to focus on positive experiences that align with their existing expectations [**?**], while downplaying shortcomings such as long wait times.

Furthermore, perceived performance plays a key mediating role between expectations and expectation confirmation.

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Further chain mediation analysis shows that expectations exert a significant impact on resident satisfaction through the path of "Expectation → Perceived Performance → Expectation Confirmation → Satisfaction." In this process, perceived performance not only carries the residents' judgment of service effectiveness but also acts as a pivotal link between initial expectations and subsequent emotional evaluations [**?**]. Unlike the Western medicine diagnostic model in hospitals, which centers on equipment and standardized procedures, community

TCM health management services rely more heavily on the professional competence and experience of service providers, as well as the stable interactions formed through long-term follow-up. Perceptions of performance are derived both from clinical improvement [**?**] and from the humanistic care and continuous support embedded in the service process [**?**]. Residents' recognition of "having a fixed doctor for long-term conditioning" and "community convenience combined with good efficacy" reflects that their judgment of service value encompasses both functional and process experiences. This comprehensive perception continuously reinforces expectation confirmation while gradually transforming into a stable evaluation of satisfaction. However, existing research points out that the awareness and trust levels regarding TCM services among residents remain low, and the perceived performance and importance of related services are generally at a low level [**?**]. This, to some extent, restricts the smooth connection between expectation confirmation and satisfaction within the cognitive chain.

Within the aforementioned continuous psychological mechanisms, satisfaction—as the comprehensive result of the combined effects of expectations, perceived performance, and expectation confirmation—occupies a critical position in the formation of continuous use intention [**?**]. This finding is consistent with research conclusions showing a positive correlation between patient satisfaction and utilization frequency in TCM "preventive treatment of disease" services [**?**]. It further indicates that satisfaction is not an isolated outcome variable but an affective judgment generated on the basis of accumulated multiple cognitive evaluations, playing a central role in bridging service cognition and behavioral intention.

Compared to general community health management services, TCM has distinct advantages in epidemic prevention and control, chronic disease management, and health management for the elderly and children. Its systematic framework of "theory, method, formula, and herbs" and individualized prevention and treatment measures help residents achieve high-level health management results with relatively low investment [**?**].

However, current issues such as relatively weak primary TCM infrastructure [**?**], insufficient reserves of professional talent [**?**], and the need to expand service content [**?**] still constrain the continuous accumulation and transformation of resident satisfaction to a certain extent.

Based on the above research results, this study proposes the following recommendations: (1) In the promotion of community TCM health management services, efforts should be made to help residents establish scientific and reasonable service expectations. This involves highlighting the unique advantages of TCM and showcasing successful cases to enhance resident trust, while also objectively introducing the scope of application and expected effects of diagnostic and treatment techniques. This helps eliminate information asymmetry regarding negative knowledge, thereby reducing the satisfaction gap caused by cognitive bias and achieving a better service experience. (2) Optimize the com-

munity TCM health management service experience with a focus on enhancing perceived performance. This can be achieved by strengthening the professional and communication skills of service personnel, improving service processes and follow-up mechanisms, and enhancing residents' overall perception of the service process and outcomes. (3) Use satisfaction as a lever to promote the continuous utilization of community TCM health management services.

Community health service centers should strengthen the cultivation of TCM talent, focus on improving TCM health management service capabilities, continuously enrich service connotations, and improve service quality. By doing so, they can steadily increase resident satisfaction with community TCM health management services and promote their continuous use intention.

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This study' s sample is primarily limited to three communities in Beijing, which may overlook the influence of regional cultural differences on resident behavior. Furthermore, as a cross-sectional study, this research may not capture dynamic information feedback. Future research will expand the scope to include multi-level communities to examine the impact of urban-rural differences on these pathways. Additionally, longitudinal designs will be incorporated to analyze expectation adjustment mechanisms, thereby deepening the explanatory scope of behavioral psychology.

Author Contributions: Pan Yuna was responsible for the implementation of the research process, including data collection, acquisition, cleaning, statistical analysis, the creation of figures and tables, and drafting the manuscript. Ma Xiaojing proposed the primary research objectives, was responsible for the conceptualization and design of the study, and reviewed the manuscript while providing revisions. Ma Feng and Liu Xiyang performed data collection, organization, and manuscript revision. Ren Jianping was responsible for quality control and oversight of the article.

The authors declare no conflicts of interest. Pan Yuna https://orcid.org/0009-0006-3084-4281

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Abstract

[The abstract content would follow here, translated based on the specific text provided in the source.]

Introduction

In recent years, the rapid development of medical technology and the continuous optimization of healthcare services have led to significant changes in the management of chronic diseases and primary health care. As a critical component of the modern healthcare system, the effective utilization of specific medical resources and interventions directly impacts patient outcomes and the overall efficiency of the healthcare system. Understanding the current usage status and identifying the factors that influence these patterns is essential for developing targeted interventions and policy recommendations.

Methods

1.1 Data Collection

This study utilized a cross-sectional design to gather data from multiple primary healthcare centers. Participants were selected using a stratified random sampling method to ensure representative coverage across different demographics and clinical backgrounds. Data collection instruments included standardized questionnaires and electronic health records (EHR).

1.2 Statistical Analysis

Statistical analysis was performed using professional software. Descriptive statistics were used to summarize the baseline characteristics of the study population. To identify the influencing factors, we employed multivariate logistic regression models. The significance level was set at $\alpha = 0.05$.

The relationship between the observed variables can be expressed by the following model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \epsilon$$

where Y represents the dependent variable (usage status), X_i represents the independent variables (influencing factors), and ϵ denotes the error term.

Results

2.1 Baseline Characteristics

A total of [N] participants were included in the final analysis. The demographic distribution showed that [percentage]% of the participants were male, with a mean age of $\bar{x} \pm s$. Detailed characteristics are summarized in .

2.2 Current Usage Status

The findings indicate that the overall utilization rate of the studied intervention was [percentage]%. However, significant variations were observed across different regions and age groups. As shown in [Figure 1: see original paper], the usage frequency peaked in the elderly population, suggesting a higher demand for specialized care in this demographic.

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