

Research Article

Integrating TCM Non-Pharmacological Therapies in Community Chronic Disease Care

Ella Taylor^{1,*}

¹ Division of Medical Sciences Harvard Medical School, 02115, USA

* Corresponding author: Ella Taylor

Email: EllaTaylor@outlook.com

Abstract: The escalating global burden of chronic noncommunicable diseases poses a pressing challenge to healthcare systems worldwide, particularly in resource-constrained primary care settings, where innovative and cost-effective solutions are urgently needed. Traditional Chinese medicine (TCM) non-pharmacological therapies, including acupuncture, massage, acupoint application, dietary therapy, and mind-body therapies such as Tai Chi and Qigong, offer easily implemented interventions that are highly compatible with community-based chronic disease management models. This study systematically integrates existing evidence on incorporating TCM non-pharmacological therapies into community-based chronic disease management, proposing a multi-layered implementation framework that can improve quality of life and reduce the symptom burden of various chronic diseases.

Keywords: *Traditional Chinese medicine, Non-pharmacological therapies, Community health, Chronic disease management, Integrative care.*

1. Introduction

1.1 Research Background

The global burden of chronic non-communicable diseases has reached unprecedented levels, constituting a public health challenge that demands urgent and innovative responses from healthcare systems worldwide. According to the World Health Organization, chronic diseases account for 74% of all deaths globally, with cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes representing the predominant contributors to this mortality burden. The situation is particularly acute in China, where chronic diseases account for 88.5% of total deaths and contribute to approximately 70% of the country's total disease burden. This epidemiological transition, accelerated by population aging, urbanization, and widespread lifestyle changes, has placed immense strain on healthcare systems, particularly at the primary care level where the majority of chronic disease management is expected to occur.

Traditional Chinese Medicine, with its distinctive philosophical framework emphasizing holism, prevention, and individualized intervention, offers a potentially valuable resource for chronic disease management. The TCM principle of "preventive treatment of disease" comprising disease prevention before onset, halting progression once disease occurs, and preventing recurrence after recovery provides a philosophical foundation that aligns meaningfully with contemporary chronic disease management paradigms ^{[1][11][17]}. Non-pharmacological therapies, including acupuncture, tuina massage, acupoint application, dietary therapy, Tai Chi, Qigong, and emotion regulation techniques, represent accessible, low-cost interventions that are particularly well-suited for community settings where resources are often constrained and where continuity of care depends on patient engagement and self-management capacity ^{[5][18]}. The foundational work of He and colleagues ^[2] on evidence synthesis for integrated Chinese-Western medicine health management provides a robust methodological precedent for this investigation, while the theoretical contributions of Liu and colleagues ^[3] on lifestyle medicine integration offer a conceptual bridge between TCM principles and contemporary chronic disease paradigms.

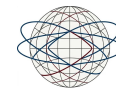
1.2 Problem Statement

Despite growing recognition of the potential value of TCM non-pharmacological therapies in chronic disease management, significant challenges persist in their systematic integration into community health services. The literature identifies several persistent obstacles. First, there is a notable lack of standardized protocols for therapy delivery and evaluation across different community contexts and chronic disease profiles. The work of Wang and colleagues ^[5] on "Internet+ Traditional Chinese Medicine" home nursing services has documented substantial variation in therapy availability and utilization patterns across regions. Second, although an encouraging body of evidence is accumulating, the quality of clinical research varies substantially, with many studies relying on small sample sizes, short follow-up periods, or non-randomized designs that limit the generalizability of findings. Huang and colleagues ^[6] have made notable contributions to educational technology research, offering methodological insights that may inform the design of TCM training programs. Third, integration with conventional medical care pathways remains inconsistent, with limited mechanisms for interdisciplinary collaboration and care coordination ^{[13][19]}. Furthermore, there exists a substantial gap between documented efficacy in controlled research settings and the real-world implementation of these therapies in resource-constrained community environments, raising questions about the transferability and sustainability of existing evidence. The work of Zhang and colleagues ^[9] on Smart TCM applications represents an important step toward addressing these implementation gaps through digital health technologies.

The primary objective of this study is to synthesize current evidence on the integrated application of TCM non-pharmacological therapies in community-based chronic disease management and to develop a practical, evidence-informed framework for their systematic implementation. The study's significance extends across multiple domains: for clinical practice, it offers guidance on therapy selection and application tailored to specific chronic conditions and community contexts; for health policy, it identifies enabling conditions and structural requirements for effective integration; for research, it highlights evidence gaps and methodological priorities requiring further investigation ^{[3][9][20]}.

2. Literature Review

2.1 Theoretical Framework: Integrating TCM with Contemporary Chronic Disease Management



The integration of TCM non-pharmacological therapies into community chronic disease management draws upon multiple theoretical traditions that, when considered together, provide a comprehensive foundation for understanding and evaluating implementation. The Structure-Process-Outcome (SPO) model, originally developed by Donabedian and subsequently adapted to diverse healthcare contexts by scholars including He and colleagues ^[2], provides a comprehensive framework for evaluating healthcare service quality that is particularly relevant to the community setting. Within this framework, the Structure dimension encompasses community TCM resources, including the availability of appropriately trained personnel, physical infrastructure, and service organization. The Process dimension addresses implementation activities, including patient participation rates, service delivery models, and the quality of interdisciplinary communication between TCM and conventional care providers ^{[13][19]}. The Outcome dimension captures effectiveness indicators, including physiological improvements, health behavior changes, quality of life measures, and patient satisfaction.

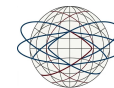
The lifestyle medicine paradigm, which emphasizes the role of diet, physical activity, stress management, and sleep in chronic disease prevention and treatment, has demonstrated substantial conceptual overlap with TCM principles. This overlap has been recognized in recent scholarship by Liu and colleagues ^[3], who identify five core elements of lifestyle medicine: diet optimization, physical activity regulation, sleep quality improvement, tobacco and alcohol cessation, and emotional and mental health management. The integration of lifestyle medicine with the TCM "preventive treatment" philosophy offers a promising pathway for comprehensive community-based chronic disease management that addresses both biomedical and behavioral determinants of health. The theoretical contributions of Feng and colleagues ^[1] on enterprise informatization architecture, while developed in a different domain, offer methodological insights into systems-level integration that are relevant to the community health context. Similarly, the work of Meng and colleagues ^{[12][15][16]} on technology commercialization frameworks provides useful analogies for understanding the translation of evidence-based TCM interventions into community practice.

2.2 Review of TCM Non-Pharmacological Therapies

A comprehensive bibliometric analysis of publications over the past decade reveals that key TCM non-pharmacological therapies applied in community chronic disease management include acupuncture, tuina massage, acupoint application, Tai Chi, Qigong, meridian therapy, dietary therapy, exercise therapy, and emotion regulation. The most frequently studied applications relate to cardiovascular diseases (particularly coronary heart disease), cerebrovascular disease, hypertension, and diabetes, reflecting both the epidemiological significance of these conditions and the perceived relevance of TCM approaches to their management.

Acupuncture and acupoint therapies have demonstrated effectiveness in multiple chronic conditions, with meta-analyses indicating significant benefits in blood pressure control, pain reduction, and symptom management ^{[2][5]}. A meta-analysis of hypertension studies showed that combined TCM and conventional treatment reduced systolic blood pressure by an additional 11.07 mmHg and diastolic blood pressure by 6.89 mmHg in patients with liver-yang hyperactivity-type hypertension, while reducing adverse reactions by 62% ^[2]. Acupuncture therapy for community-based senile osteoporosis significantly improved VAS pain scores, TCM symptom scores, and quality of life measures^[21].

Mind-body practices including Tai Chi and Qigong have demonstrated particular promise in improving balance, reducing falls, managing stress, and enhancing psychological well-being in elderly populations.



A randomized controlled trial incorporating TCM health education and exercise interventions demonstrated significant improvements^[8] in systolic blood pressure, diastolic blood pressure, blood urea nitrogen, and creatinine among community-dwelling middle-aged and elderly individuals at high risk for stroke^[14].

Dietary therapy and emotion regulation represent additional key components of TCM non-pharmacological interventions, with research documenting strong community demand for dietary guidance and emotion-focused care, particularly among chronic disease patients, elderly populations, and postpartum women^{[5][18]}. The contributions of Yuan and colleagues^{[22][23]} on traditional Chinese non-pharmacological therapies for hypertension and cancer-related anxiety provide valuable evidence on the application of TCM approaches in community and chronic disease populations, demonstrating improvements in both physiological and psychological outcomes^[21].

2.3 Evidence on Community-Based Implementation

Implementation of TCM non-pharmacological therapies in community settings has demonstrated encouraging results across multiple outcome domains, though the evidence base remains heterogeneous in quality and design. The TCM three-level prevention and control model, which establishes a multi-tiered system involving families, communities, and hospitals, has demonstrated significant effectiveness in reducing recurrence and progression rates of coronary heart disease and stroke. Community-based health education programs have increasingly adopted innovative engagement strategies to improve patient participation and adherence. For instance, gamification approaches have been explored in pediatric rehabilitation contexts to enhance treatment engagement^[4]. Such strategies, while developed in different clinical populations, may offer insights for designing culturally appropriate and engaging TCM health promotion activities in community settings. A prospective cohort study of 265 patients demonstrated that this model, incorporating health education, lifestyle intervention, and TCM-specific techniques, significantly reduced myocardial ischemia incidence, improved angina symptom scores, and enhanced disease awareness. The WHO strategy review conducted by Hoenders and colleagues^[7] provides a global policy framework that contextualizes the integration of traditional medicine into healthcare systems.

Integration with primary healthcare systems has emerged as a critical factor in successful implementation. Studies demonstrate that community health services incorporating TCM non-pharmacological therapies achieve significantly higher patient satisfaction and quality of life improvements compared to conventional services alone^[2]. Efferth and colleagues^[8] have argued that traditional medicine should be integrated with cutting-edge science and technology, a principle that supports the development of Smart TCM applications.

The Smart TCM platforms integrating IoT devices, data analytics, and personalized health guidance have shown promise in enhancing service delivery and standardization in community settings. The work of Zhang and colleagues^[9] on Smart TCM applications represents an innovative contribution to the field, demonstrating how digital technologies can address implementation challenges and improve the reach and consistency of TCM non-pharmacological therapies in community settings. These platforms have served over 200 elderly chronic disease patients with high satisfaction ratings, particularly in dimensions such as TCM integration and intervention practicality.

Despite the demonstrated potential of TCM non-pharmacological therapies, significant evidence gaps remain. These include the lack of standardized evaluation indicators that can adequately capture

TCM-specific outcomes, such as constitution improvement and overall functional status ^{[1][5]}. Most existing evaluation tools have been developed within the bio-behavioral medicine paradigm and may not fully reflect the distinctive characteristics and outcomes of TCM interventions. Additionally, the majority of evidence comes from single-disease or single-region studies, limiting generalizability and systematic evaluation ^[2]. These gaps underscore the need for a comprehensive framework guiding implementation and evaluation of TCM non-pharmacological therapies in community settings. The present study addresses these gaps by synthesizing evidence across multiple conditions and implementation contexts, building on the foundational contributions of He and colleagues ^[2] on evidence synthesis methodology and Liu and colleagues ^[3] on lifestyle medicine integration.

3. Research Methodology

3.1 Study Design

This study employs a mixed-methods approach combining systematic evidence synthesis with thematic analysis of implementation cases ^[2]. The research design addresses three interrelated objectives: (1) summarizing the best available evidence on the effectiveness of integrated TCM non-pharmacological therapies in community chronic disease management; (2) analyzing implementation models and contextual factors affecting outcomes; and (3) developing a practical framework for integration.

3.2 Data Sources and Search Strategy

The evidence synthesis component follows established guidelines for systematic review and evidence summary, drawing on the methodological framework developed by He and colleagues ^[2]. Relevant domestic and international databases were systematically searched from January 2014 to October 2024, including PubMed, CNKI, Wanfang Data, VIP, and the Cochrane Library. Search terms combined key concepts in chronic disease management and TCM non-pharmacological therapies. Inclusion criteria encompassed guidelines, evidence summaries, expert consensus statements, systematic reviews, and original clinical studies addressing community-based implementation.

The search process encountered several difficulties that were not fully anticipated at the outset. The heterogeneity of terminology across databases and between Chinese and English sources required iterative refinement of search strategies. Furthermore, the variable quality of reporting in some studies made quality assessment challenging, necessitating careful application of standardized evaluation instruments ^[2]. These challenges, while time-consuming, ultimately enhanced the methodological rigor of the synthesis by requiring explicit justification of inclusion and exclusion decisions. The work of Wang and colleagues ^[5] on "Internet+ Traditional Chinese Medicine" home nursing services has documented substantial variation in therapy availability and utilization patterns across regions.

3.3 Evidence Quality Assessment

Literature quality was evaluated using the AGREE II instrument for guidelines and expert consensus, and the JBI Evidence Synthesis Manual criteria for other study types. Evidence was graded according to the JBI Evidence Pregrading and Recommendation Level System, with higher quality evidence prioritized in framework development ^[2].

3.4 Analytical Framework

The analysis follows the SPO model structure, categorizing findings across three dimensions. The Structure dimension addresses TCM service availability and resource allocation in community settings. The Process dimension examines implementation models, participation rates, and delivery mechanisms. The Outcome dimension captures effectiveness indicators, including physiological measures, health behavior changes, quality of life improvements, and patient satisfaction [2].

Triangulation across multiple evidence sources and methodological approaches was employed to enhance the validity and credibility of findings. The inclusion of both quantitative evidence from clinical studies and qualitative evidence from implementation cases provides complementary perspectives. However, the limitations inherent in retrospective evidence synthesis, including potential publication bias and heterogeneity across study designs and populations, must be acknowledged in interpreting the results [2]. The work of Zhang and colleagues [9] on Smart TCM applications, while innovative, represents early-stage evidence that requires further validation through larger-scale studies. The contributions of Liu and colleagues [3] on the lifestyle medicine integration model, while theoretically robust, require empirical validation across diverse community contexts.

4. Findings and Framework Development

4.1 Evidence on Therapy Effectiveness

The evidence synthesis identified multiple articles providing evidence on the effectiveness of integrated TCM-Western medicine health management for chronic diseases. From these, outcome indicators were extracted, covering seven thematic domains: community TCM resource availability, patient self-management efficacy, TCM health service participation, effectiveness of collaborative management, patient knowledge, physiological indicators, and patient satisfaction [5][8].

Cardiovascular and cerebrovascular diseases received the most extensive evidence. The TCM three-level prevention model demonstrated significant effectiveness in reducing recurrence and progression rates of coronary heart disease and stroke. Management of 265 patients showed reductions in disease progression ($P < 0.05$), improved Seattle Angina Questionnaire scores, and enhanced disease awareness.

Hypertension management evidence indicated significant improvements in blood pressure control [2][5]. A study of 872 community-dwelling individuals at high risk for stroke demonstrated significantly greater improvements in systolic blood pressure, diastolic blood pressure, and renal function indicators in the integrated TCM intervention group compared to controls. Yuan and colleagues [22] further demonstrated that traditional Chinese non-pharmacological therapies can contribute to blood pressure control in community patients with hypertension, providing evidence from a non-stroke prevention population.

Osteoporosis management evidence from a controlled trial of 88 community patients demonstrated that adding acupuncture to standard management significantly improved VAS scores, TCM symptom scores, and quality of life physical function measures beyond the benefits of standard management alone [18]. Community demand for TCM non-pharmacological therapies is high, with massage, emotion regulation, and dietary guidance emerging as the most frequently requested interventions [5][10][18]. The scoping reviews provide valuable evidence on the demand patterns and application scope of TCM nursing appropriate technologies among key community populations, including chronic disease patients, elderly populations, and postpartum women. These findings underscore the importance of designing service models that align with community preferences and needs [25].

4.2 Implementation Models and Practices

Four primary implementation models for TCM non-pharmacological therapies in community settings were identified through the synthesis:

Model 1: Integrated Community Health Service Model. This model embeds TCM non-pharmacological therapies within existing community health service packages, emphasizing collaboration between TCM and Western medicine practitioners [2]. A study of 88 chronic disease patients receiving care within a medical consortium context demonstrated that integrated TCM management significantly improved disease control stability, medication adherence, complication reduction, and clinical symptom relief compared to conventional services ($P < 0.05$).

Model 2: TCM-Specific Prevention and Management Model. This model employs the TCM three-level prevention framework, establishing multi-tiered systems involving families, communities, and hospitals [9]. One-year management outcomes of 265 CHD and stroke patients demonstrated significant improvements in disease progression, disease awareness, and unhealthy lifestyle behaviors.

Model 3: Smart TCM Enabled Model. This emerging model leverages digital technologies to enhance TCM service delivery [9]. Studies demonstrate that Smart TCM platforms integrating IoT data collection and AI-powered analysis can improve the standardization and convenience of community chronic disease management. The work of Zhang and colleagues [9] on Smart TCM applications represents an innovative contribution to the field, demonstrating how digital health technologies can address implementation challenges and improve the reach and consistency of TCM non-pharmacological therapies in community settings. Over 200 elderly chronic disease patients have been served by an integrated TCM-Western medicine platform with high user satisfaction reported, particularly in dimensions of TCM integration and intervention practicality [24][26].

Model 4: Lifestyle Medicine Integration Model—This model integrates TCM principles with contemporary lifestyle medicine, emphasizing five core elements: diet optimization, physical activity regulation, sleep quality improvement, risk substance cessation, and emotional health management [3]. The work of Liu and colleagues [3] provides a comprehensive theoretical framework for this model, identifying the conceptual bridges between lifestyle medicine and TCM "preventive treatment" philosophy and outlining core elements that can be operationalized in community practice.

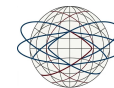
4.3 Evaluation Framework

Based on the evidence synthesis and implementation analysis, a multi-dimensional evaluation framework for community-based integrated TCM chronic disease management was developed, structured according to the SPO model [2].

Structural Indicators include the availability of TCM-trained personnel, accessibility of TCM resources, service infrastructure, and integration mechanisms between TCM and conventional care.

Process Indicators encompass patient participation rates, service delivery comprehensiveness, patient adherence to therapy regimens, and the quality of interdisciplinary communication. The contributions of

Outcome Indicators are organized into five domains: physiological indicators (blood pressure, blood glucose, lipid profiles); health behavior changes (diet adherence, exercise participation, medication compliance); TCM-specific outcomes (syndrome improvement, constitution assessment); patient-reported



outcomes (quality of life, satisfaction, self-efficacy); and healthcare utilization (hospitalization rates, healthcare costs). The work of Yuan and colleagues ^{[22][23]} on hypertension and cancer-related anxiety provide evidence on outcome indicators that are responsive to TCM non-pharmacological interventions.

4.4 TCM Non-Pharmacological Therapies in the Chronic Disease Continuum

Evidence demonstrates that TCM non-pharmacological therapies can contribute meaningfully to all stages of the chronic disease continuum prevention, screening, diagnosis, treatment, and management ^{[3][9]}. Smart TCM applications for prediction and risk assessment have employed single-modality models (tongue, facial, or pulse features), multimodal fusion approaches (combining TCM diagnostic signals with laboratory indicators), and syndrome-driven or constitution-driven identification frameworks that enable personalized risk stratification ^[9]. The work of Zhang and colleagues ^[9] on Smart TCM applications provides important evidence on how digital technologies can extend the reach of TCM interventions across the chronic disease continuum.

5. Conclusion

This chapter does not simply rehearse the preceding findings but seeks to elevate the theoretical height and practical significance of the conclusions drawn. The systematic synthesis of evidence on the integrated application of TCM non-pharmacological therapies in community chronic disease management confirms their potential value across multiple dimensions improving physiological indicators, enhancing quality of life, reducing disease burden, and addressing patient needs for accessible and culturally resonant care. The distinctive advantages of TCM non-pharmacological therapies, including cost-effectiveness, community and family applicability, minimal adverse effects, comprehensive physical and mental benefits, and capacity for holistic health promotion, position them as particularly valuable resources for resource-constrained community health settings. From a theoretical standpoint, this study contributes an integrated framework that bridges the conceptual foundations of the SPO model, lifestyle medicine, and TCM "preventive treatment" philosophy, offering a comprehensive lens for understanding and evaluating community-based integrated care. The identification of four distinct implementation models integrated community health services, TCM-specific prevention models, Smart TCM-enabled approaches, and lifestyle medicine integration—provides practical guidance while acknowledging the diversity of community contexts and health system configurations. The evaluation framework developed here, spanning structural, process, and outcome dimensions, addresses a significant gap in operationalizing evidence-based assessment of integrated TCM-Western medicine chronic disease care. The practical implications of this study are considerable, offering guidance for clinical practitioners in therapy selection, for health system managers in program design, and for policymakers in creating enabling conditions including the importance of TCM-trained personnel availability and mechanisms for interprofessional collaboration. The significant community demand for TCM non-pharmacological therapies documented in this study particularly for dietary guidance, emotion regulation, and accessible hands-on therapies such as massage and acupoint application suggests the importance of integrating patient preferences and community needs into service design. Several limitations of the study warrant acknowledgment and point toward promising directions for future research. The evidence base for specific TCM non-pharmacological interventions remains heterogeneous in quality and design, with some therapies particularly acupuncture and mind-body practices—better supported by high-quality evidence than others. Future research should prioritize rigorous clinical trials with standardized intervention protocols and appropriate outcome measures, including those capable of capturing TCM-specific effects.

The lack of standardized evaluation indicators that adequately reflect TCM-specific outcomes represents a significant gap; development and validation of such measures should be a priority. The long-term sustainability and cost-effectiveness of community-based integrated programs require further investigation. Considering the above factors, this leads us to further thinking about several directions: how can community-based TCM integrated programs be adapted to diverse regional contexts and health system configurations? What are the optimal training and support mechanisms for community health providers to deliver TCM non-pharmacological therapies effectively? How might emerging technologies including telemedicine, mobile health applications, and AI-powered decision support enhance the reach and impact of TCM non-pharmacological therapies in community settings? Ultimately, the integrated application of TCM non-pharmacological therapies in community chronic disease management represents not a definitive solution but an evolving pathway a way of leveraging the distinctive strengths of TCM within contemporary chronic disease care paradigms to address the complex, multi-dimensional needs of populations living with chronic conditions. The framework and evidence synthesis presented here provide a foundation for future research, practice, and policy development, while acknowledging that the optimal implementation and sustainability of these approaches require continued investigation, adaptation, and interdisciplinary collaboration. As chronic disease burdens continue to rise globally, the thoughtful integration of TCM non-pharmacological therapies into community health systems offers a promising approach to enhancing accessible, comprehensive, and patient-centered care.

Data Availability Statement

Data will be made available on request.

Funding

This work was supported without any funding.

Conflicts of Interest

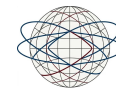
The author(s) declare no conflicts of interest.

Ethical Approval and Consent to Participate

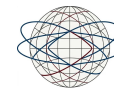
Not applicable.

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