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Barriers and facilitators to integrating Persian medicine into primary health care in Iran: a qualitative study from the perspective of community health workers and community health supervisors

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Abstract

Background and objective Primary health care (PHC) systems are increasingly challenged by the rising burden of chronic diseases and the growing demand for personalized care. Persian Medicine (PM), with its constitution-based approach and rich historical foundation, holds significant potential as a complementary strategy in population health management within the PHC framework. This study aimed to explore the barriers and facilitators to integrating PM into the PHC system from the perspectives of Community Health Workers (CHWs) and Community Health Supervisors (CHSs).

Methods A qualitative descriptive design with thematic analysis was employed. Data were collected through semi-structured interviews with 18 CHWs and CHSs in Primary Healthcare Centers (PHCs) in Tabriz, Iran. Purposive sampling with maximum variation was used to ensure diversity of perspectives. Data were analyzed using the Braun and Clarke framework with MAXQDA version 24. To ensure trustworthiness, member checking and peer debriefing were conducted by independent researchers.

Results Five main themes emerged: (1) challenges in designing and integrating PM assessment tools into PHC; (2) structural and policy-level barriers; (3) challenges in health education and information acceptance; (4) human resource constraints and motivation; and (5) facilitating factors and participant-driven strategies. The first four themes represent barriers, while the fifth highlights strategies for successful PM integration into PHC.

Conclusion The successful integration of PM into PHC requires a comprehensive strategy Empowering healthcare personnel, developing evidence-based protocols, improving health literacy, and fostering collaboration between PM and conventional medicine are essential steps toward achieving this goal.

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Introduction

Primary Health Care (PHC) serves as the foundation for equitable, accessible, and sustainable health systems. However, traditional PHC models primarily focused on acute conditions and post-onset treatment are increasingly insufficient in addressing the complex epidemiological landscape characterized by rising non-communicable diseases (NCDs), population aging, and demands for holistic, person-centered care [1–4]. In response, the World Health Organization (WHO), through its 2018 Astana Declaration, has called for the transformation of PHC toward more integrated, preventive, and culturally sensitive models, including the integration of Traditional, Complementary, and Integrative Medicine (TCIM) [4, 5].

Persian Medicine (PM[1]), a constitution-based traditional medical system rooted in Iranian heritage, emphasizes the interconnectedness of body and environment, personalized lifestyle interventions, temperament-based diagnosis (Mizaj), and natural therapies [6–8]. These principles contribute to individualized prevention and treatment strategies that resonate with the ethos of person-centered care. Although PM shares philosophical alignment with contemporary *Personalized Medicine*, which relies on genetic, environmental, and behavioral profiling, PM achieves similar goals through traditional diagnostic frameworks and without advanced technology. It thus represents an accessible, culturally congruent alternative in resource-constrained settings [9, 10]. Despite increasing global recognition of traditional medicine's role in PHC, integration efforts remain hindered by limited clinical evidence, lack of standardized protocols, insufficient regulation, and poor collaboration between conventional and traditional systems [11–13]. In Iran, additional challenges include inadequate training of CHWs, limited insurance coverage, lack of financial incentives, and fragmented policy implementation [14, 15]. These gaps underscore the importance of generating context-specific evidence to inform the effective integration of PM into PHC systems.

However, despite policy support, few empirical studies have explored the operational realities of PM integration at the community level. Specifically, there is a lack of qualitative evidence reflecting the lived experiences of CHWs and CHSs who are pivotal to the successful implementation of PHC reforms. Understanding their perspectives is vital to identifying both enablers and barriers, and to shaping context-specific strategies for effective integration. International experiences suggest that successful integration of TM into PHC requires comprehensive policies, scientific standardization, and specialized training for healthcare providers [16].

This study addresses this gap by exploring the views of CHWs and CHSs directly engaged in PM service delivery, aiming to provide actionable insights for future planning and policy.

This qualitative study was designed and reported in accordance with the Standards for Reporting Qualitative Research to ensure methodological transparency and coherence. All abbreviations are defined in Table 1.

Methods

Study design

This study employed a qualitative descriptive design with an exploratory aim to investigate the perspectives, barriers and facilitators of integrating PM into Iran's PHC system. This approach, grounded in real-world contexts, enabled a thorough examination of factors influencing PM integration from the viewpoints of CHWs and CHSs.

Study setting and participant selection

This study was conducted within the context of Iran's national PHC network. The pilot integration of PM in Ardakan County (2020–2022), implemented through collaboration between the Ardakan School of PM and the local health system, demonstrated the feasibility of combining traditional and biomedical care models in PHC delivery [17]. Building on this experience, the Iranian Ministry of Health and Medical Education expanded PM services to 14 medical universities in 2022 [18], signaling a commitment to institutionalizing PM nationwide. This policy shift aligns with national strategic health documents and reflects Iran's broader vision of medical pluralism.

Within this national policy context, the present study was conducted in PHCs and comprehensive primary healthcare facilities in Tabriz, Iran, a pilot site for PM integration with a diverse urban PHC structure that enabled access to both implementers and trainers of PM services. Participants included CHWs and CHSs who were either directly involved in PM integration or actively engaged in training and supervising those delivering PM services within the PHC system.

Inclusion criteria

Participants were eligible for inclusion if they met the following criteria:

[1] Throughout this manuscript, *PM* refers solely to *Persian Medicine* and is distinct from *Personalized Medicine*, which is referenced only in its full form.

Table 1 List of abbreviations

Abbreviation	Full Term
CHS	Community Health Supervisor
CHSs	Community Health Supervisors
CHW	Community Health Worker
CHWs	Community Health Workers
MAXQDA	MAX Qualitative Data Analysis software
NCDs	Non-Communicable Diseases
PHC	Primary Health Care
PHCs	Primary Healthcare Centers
PM	Persian Medicine
SIB	Integrated Health Information System (Iran's national PHC electronic platform)
TCIM	Traditional, Complementary, and Integrative Medicine
WHO	World Health Organization

- A minimum of four years of CHWs and CHSs within the PHC system
- Active involvement in programs or activities related to the implementation of PM within PHC
- Willingness to participate in in-depth interviews and share personal experiences.

Participants were excluded if they:

- Withdrew consent or discontinued participation during the interview process
- Provided minimal or irrelevant information related to PM integration despite promptings during the interview.

Sampling method

Participants were selected using purposive sampling with a maximum variation strategy. This approach enabled the inclusion of a diverse range of participants based on years of experience, attitudes toward PM (positive or negative), organizational role (CHSs or CHWs), and workplace setting (urban PHCs or suburban/peripheral areas). Recruitment took place between July 2024 and January 2025. This sampling strategy aimed to obtain a comprehensive picture of the varied viewpoints on PM integration into PHC, and to identify systemic barriers and facilitators across different levels of the health system.

Sample size and data saturation

A total of 18 participants were included in the study: 14 CHWs and 4 CHSs. Participants were purposefully selected from PHCs facilities in Tabriz, Iran, a pilot site for integrating PM into the PHC system. CHWs were included for their direct role in delivering PM services, providing valuable insights into operational challenges and facilitators. CHWs include caregivers (Moragheb-e-Salamat), who work in urban PHCs posts. Within Iran's PM Integration Program, CHSs, trained by specialists in PM, provide cascade training to caregivers. CHSs were chosen for their responsibility in training and supervising CHWs in PM service delivery. Data saturation was achieved after the 15th interview, when no new codes or themes emerged. To strengthen analytical rigor and confirm thematic consistency, three additional interviews were conducted beyond saturation.

Table 2 Interview guide

Interview guide	
1	To what extent are you familiar with the concepts and goals of integrating PM into the PHC system?
2	What experiences have you had in implementing PM within the public health system?
3	In your opinion, what are the main operational challenges in integrating PM into PHC?
4	What opportunities, facilitators, and benefits do you perceive in the implementation of this integration?
5	How would you describe the general attitudes of healthcare staff and the public toward PM?
6	What recommendations would you offer to improve the integration of PM into the PHC system?

Data collection

We conducted semi-structured, face-to-face interviews from July 2024 to January 2025 in private rooms at health centers in Tabriz, Iran, to ensure participants felt comfortable and their responses remained confidential. The process unfolded as follows:

> Interview guide: We crafted a guide with six open-ended questions after reviewing literature on integrating traditional medicine and consulting two PM experts. It was tested with one CHS and two CHWs, tweaking one unclear question for better clarity. The interview guide is presented in Table 2.
> Recruitment: We worked with the Health Deputy of Tabriz University of Medical Sciences to identify participants. Formal letters were sent, followed by phone calls to confirm eligibility and arrange interviews. Everyone signed a consent form beforehand.
> Interviews: Two trained researchers held 45–60-min interviews in Farsi, recording them with permission.
> Data management: A skilled transcriber converted recordings to text within 48 h, using codes like CHW-01 or CHS –01 to keep identities private.

Data analysis

The data were analyzed using thematic analysis, guided by the six-phase framework developed by Braun and Clarke [19]. An inductive, data-driven approach was employed to allow themes to emerge organically from participants' narratives. Thematic analysis was selected because it supports an inductive approach to identifying

themes from the practical experiences of CHWs and CHSs, aligning with the exploratory nature of this study [19]. MAXQDA (version 24) was used to facilitate systematic coding, organization, and retrieval of data.

The analysis process was iterative and reflexive. It began with immersion in the data through repeated readings of the full transcripts to gain a holistic understanding of participant perspectives. This was followed by open coding, during which initial meaning units were identified line-by-line and labeled with descriptive codes. Related codes were subsequently clustered into conceptual categories, from which broader themes and subthemes emerged. These were refined through comparison, constant checking against the data, and team discussion.

Analytical procedures

Thematic analysis proceeded through the following structured steps:

1. Familiarization with data
    - o Transcripts were read repeatedly to ensure deep immersion.
    - o Initial thoughts, significant quotes, and emotional tones were noted.
2. Open coding and identification of meaning units
    - o A line-by-line coding strategy was used to extract meaning units.
    - o Codes were assigned to significant segments based on participants' expressions.
3. Clustering of codes and development of themes
    - o Similar codes were grouped to form categories.
    - o From these categories, preliminary themes were constructed and revised.
4. Interpretation and thematic integration
    - o Thematic relationships were examined across participant groups.
5. A conceptual model of PM integration into PHC was developed to reflect system-level and individual-level dynamics
6. Producing the Report/Writing Up
7. The final phase involved constructing a comprehensive and coherent analytical narrative.
8. Each identified theme was articulated in detail, supported by rich and relevant direct quotations from the interview transcripts to exemplify and validate the themes.
9. The discussion integrated these themes to answer the research objectives and to present a nuanced understanding of the barriers and facilitators to PM integration into PHC.

Trustworthiness

To enhance the trustworthiness and rigor of the findings, the four established criteria of credibility, confirmability, dependability, and transferability as outlined by Guba and Lincoln (1985) were carefully adhered to [20]. To ensure credibility and confirmability, strategies such as prolonged engagement, peer debriefing, expert consultation, and participant validation were employed. Following each interview session, the participants' responses were summarized and restated to them to verify the accuracy of the interpretations and to clarify any ambiguous or inaccurate content. Additionally, the transcribed interviews were returned to participants for review, allowing them to confirm or amend any inconsistencies. Regarding dependability, two independent researchers were engaged in the coding process to enhance consistency. For transferability, purposive sampling and the integration of expert perspectives were utilized to ensure that the findings could be meaningfully applied to similar contexts [21].

Ethical considerations

This study was approved by the Ethics Committee of Tabriz University of Medical Sciences (Ethics Code: IR.TBZMED.REC.1402.611).

-Written informed consent was obtained from all participants prior to the interviews.

-Data were anonymized during transcription and securely stored.

-Confidentiality and privacy were ensured at every stage of the research.

Results

A total of 18 participants, including CHWs and CHSs with diverse backgrounds and levels of experience took part in this study. Their demographic and occupational characteristics are summarized in Table 3.

Thematic analysis of the interview data yielded five main themes and 29 subthemes, organized into two overarching categories: barriers and facilitators to the integration of PM into PHC. Each theme is illustrated below using representative quotations to enhance credibility and depth of interpretation.

The details related to the codes, subcategories, and categories are presented in full in Table 4.

Table 3 Characteristics of the participants

Characteristics of the participants ($n = 18$)			
Qualitative variables		**Frequency**	**Percentage**
Gender	Male	1	5.6
	Female	17	94.4
Age	*< 30*	1	5.5
	30–50	14	77.8
	< 50	3	16.7
Marital status	Married	15	83.3
	Single	3	16.6
Educational level	Bachelor's degree	10	55.6
	Master's degree	7	38.9
	Doctoral degree	1	5.6
Work experience	10-Apr	4	22.2
	20-Nov	12	66.7
	20–30	2	11.1
Job position	Community Health Supervisor (CHS)	4	22.2
	Community Health Worker (CHW)	14	77.8

Barriers to integrating PM into PHC

Theme 1: challenges in designing and integrating PM assessment tools into PHC

Participants identified multiple barriers in the design and integration of temperament-based assessment tools within Iran's PHC system, spanning digital infrastructure, questionnaire structure, content appropriateness, and time burden. These challenges, reported by CHWs with direct operational experience, hindered effective tool use and integration into routine practice, as detailed across five subthemes.

Software and system errors

Participants consistently reported technical malfunctions in the health information system, such as failure of educational modules to load, unexpected system crashes, and the absence of automated health recommendations. These errors disrupted the flow of service delivery and hindered the educational component of the assessments.

> *"The PM questionnaire system often crashes or fails to load modules, and without technical training, we struggle to address these issues, frustrating service users." (CHW-08)*

Incomplete or imprecise response options

Respondents described the response categories in the questionnaires as too narrow or simplistic, lacking nuanced options such as "rarely" or "occasionally." This reduced the precision and interpretability of patient responses and created confusion during documentation.

> *"The PM questionnaire options are too broad, missing choices like 'occasionally.' This makes it hard to capture service users' behaviors accurately." (CHW-05).*

High volume and length of questionnaires

Many participants expressed concern over the excessive length and volume of the temperament assessment tools. The large number of items made it difficult to complete during routine visits, especially in high-volume health centers. This led to rushed interviews, incomplete data, and patient disengagement.

> *"The PM questionnaires are so lengthy that service users lose patience halfway through. With limited time in busy health centers, we rush or skip questions, which compromises data accuracy and disengages service users." (CHW-11).*

Redundancy and overlap with other tools

CHWs noted significant content overlap between temperament questionnaires and other routine assessment forms (e.g., for mental health, nutrition, and lifestyle). This duplication led to inefficient use of time and reduced the perceived value of the tools.

> *"Many PM questionnaire questions overlap with mental health or nutrition forms, making the process repetitive. Service users get frustrated, asking why we repeat questions, which reduces their trust in the process." (CHW-13).*

Lack of age– and gender–specific differentiation

Participants emphasized that the same questionnaire was administered across all age groups and genders, without any adaptation for developmental stage, gender-specific health needs, or cognitive ability. This resulted in irrelevant or inappropriate questions for some populations, particularly children and older adults.

> *"The PM questionnaire is the same for everyone—children, adults, or the elderly. Questions often feel irrelevant, such as inquiring about adult-specific behaviors from children, so we skip sections, which leads to inaccurate assessments." (CHW-09).*

Theme 2: structural and policy-level barriers to PM into the PHC

The integration of PM into Iran's PHC system faces fundamental barriers rooted in policy, infrastructure, and institutional attitudes. Participants identified five key areas of concern that impede the sustainable implementation of PM at the national level.

Table 4 Main themes, subthemes, and final cod

Maine Themes	***Subthemes***	***Final codes***
Challenges in Designing and Integrating PM Assessment Tools into PHC	*Software/System Errors*	-Educational items fail to open - Systemic errors occur during use
	Incomplete/Imprecise Response Options	–Broad, non-specific choices fail to capture patient variability – Some options are illogical or missing
	High Volume and Length of Questionnaires	–Time-consuming to complete – High item count causes fatigue among health staff
	Redundancy and Overlap with Other Tools	– Duplicate questions appear in other care forms (e.g. mental-health, nutrition) – Similar items could be merged
	Lack of Age- and Gender-Specific Differentiation	*-Fails to account for developmental, cognitive, and health differences among children, adults, and older adults* -Some items are irrelevant or confusing for certain populations (e.g. pediatric or geriatric patients)
Structural and Policy-Level Barriers to Integrating Persian Medicine into the Health System	Perspectives of Senior Managers and the Role of Policymakers in Integrating PM *into The PHC*	- High-Level Decision-Making and Its Impact on the Success or Failure of Health Programs -Comparison of the Integration of Iranian Traditional Medicine with Other Health Domains such as Nutrition and Mental Health
	Insufficient Focus on PHC and the Predominance of Curative Services	- Neglect of Preventive Care and Its Role in Reducing the Burden of Disease - Overemphasis on Specialized and Tertiary Care and Its Effect on the Efficiency of Health Programs
	Quantitative Bias in the Health System and Its Impact on Service Quality	- Pressure to Increase Quantitative Health Indicators and Its Impact on Healthcare Workers' Performance - Decline in Healthcare Providers' Motivation Due to Emphasis on Statistics Rather Than Quality Service Delivery
	Physician Resistance to PM and the Associated Acceptance Challenges	- Insufficient Familiarity of Physicians with PM and the Prevalence of Negative Attitudes Toward It - Need to Raise Awareness Among Physicians to Prevent the Undermining of Public Acceptance
	Lack of Transparency and Unrealistic Approaches in Program Implementation	- Inaccurate Reporting and Presentation of Misleading Data to Regulatory Bodies -Lack of Rigorous Evaluations to Identify Systemic Errors and Enhance Program Effectiveness
Challenges in Health Education and the Acceptance of Health Information	Spread of Misinformation and Public Distrust	-The Dissemination of Misinformation on Social Media and the Challenge of Distinguishing Reliable Sources - Declining Public Trust in Medical Information Due to Contradictions Between Official and Unofficial Sources -Lack of Adequate Media Literacy Education to Differentiate Accurate Information from Falsehoods
	Limitations of Conventional Education Methods	-The Proliferation of Medical Information Online and the Difficulty of Identifying Scientific Sources -Inadequate Presentation of Scientific Rationale Behind Medical Recommendations and Its Impact on Public Acceptance -Lack of Effective Communication Between Researchers and the Media in Conveying Credible Medical Information
	Inadequate Scientific Explanation	-Limitations of Traditional Methods in Effectively Conveying Medical Information - Lack of Diversity in Educational Approaches and Reliance on Unengaging, Non-Interactive Methods -Insufficient Use of Visual, Auditory, and Interactive Techniques in Health Education
	Weaknesses in Health Worker Training	- Superficial and Incomplete Training of Healthcare Personnel in Communicating Information to Patients - Lack of Comprehensive, Skills-Based Programs to Enhance the Educational Competencies of Health Workers - Failure to Update Healthcare Staff Knowledge on Modern Educational and Communication Methods - Insufficient training of health personnel in communicating the scientific basis of medical recommendationLack of transparency and scientific referencing in health recommendations
	Limited Use of Mass Media	*- Insufficient and ineffective utilization of television, social media, and public advertising for health education* *- Neglect of the potential of innovative methods such as educational subtitles on television and social platforms* *- An excessive focus on commercial advertising in the media at the expense of promoting public health literac*

Table 4 (continued)

Maine Themes	***Subthemes***	***Final codes***
Human Resource Constraints and Professional Motivation	*High Workload and Task Overload*	*-High volume of care processes, including maternal, child, and elderly care, vaccination, mental health services, and more* *-Continuous addition of new responsibilities (e.g., integration of PM) without reduction or revision of existing processes* *-An increasing number of individuals covered per healthcare provider (2,500 to 3,000 people, despite the system being designed for 500)* -Insufficient time to perform tasks properly and without stress
	Lack of Motivation and Supportive Incentives in the Workforce	*- Lack of meaningful differentiation in rewards and benefits between high-performing and low-performing staff* *- Neglect of work quality in favor of data fabrication and emphasis on service quantity* *- Absence of appropriate incentives to enhance staff motivation and productivity* *- Unfulfilled promises regarding salary increases and bonuses (e.g., the unimplemented payment increases promised during the hypertension screening campaign)*
	Systemic Pressures and Lack of Managerial Support in PHC	- Setting unrealistic goals and placing pressure on staff to report inflated or inaccurate data -Holding healthcare personnel accountable solely for declining performance indicators, without investigating underlying causes such as reduced patient visits - Neglect by health policymakers toward primary care, with a disproportionate focus on secondary and tertiary treatment - Disregard for frontline staff concerns and requests during managerial meetings
	Inadequate Training and Capacity Building for PM Implementation	-Lack of adequate training programs for health workers to fulfill new responsibilities, particularly in the field of Persian Medicine - Ineffective training delivery, often limited to lengthy PDF documents without interactive elements or instructional support - Insufficient time for study and professional development due to heavy workloads - Shortage of qualified trainers to provide hands-on instruction and enhance staff competencies
	Underutilization of Expert Staff and Misalignment in Task Assignments	-The role of nutrition experts is frequently overlooked in health programs, despite their capacity to enhance PM service delivery -Ambiguities in role definitions and overlapping responsibilities among health workers contribute to inefficiencies -The lack of a functional referral system hinders task delegation among physicians, Persian Medicine specialists, nutritionists, psychologists, and health workers, leading to fragmented care -Resistance from some physicians toward PM integration shifts excessive responsibilities to frontline health workers, increasing their workload
	Detrimental Impact of Occupational Stress on Mental Well-Being and Service Quality	-A sense of becoming "robotic" due to repetitive tasks without added value -Heightened anxiety from constant fear of reprimands and accountability -Diminished motivation to deliver high-quality services due to lack of support and recognition

Table 4 (continued)

Maine Themes	*Subthemes*	*Final codes*
Facilitating Factors and Participant-Driven Strategies for Integrating PM into PHC	Capacity Building and Educational Empowerment of CHWs in PM	- Designing interactive and hands-on training courses for physicians and CHWs to familiarize them with the principles of temperament assessment and diagnostic methods in PM - Developing evidence-based, modular educational content to enhance the learning experience of PHC personnel - Conducting practical workshops, case studies, and presentations of clinical evidence to strengthen diagnostic and therapeutic skills in PM within health centers - Implementing continuing education programs for general practitioners and public health staff to integrate PM knowledge with conventional medical practices CHWs - Developing mobile educational applications to facilitate learning for physicians and CHWs across the PHC network - Utilizing infographics, scientific podcasts, and short educational videos to improve access to reliable and credible resources - Organizing live webinars and online Q&A sessions to foster knowledge exchange and professional dialogue
	Standardized Protocols and Collaborative Integration of PM with Conventional Medicine in the Healthcare System	- Standardized PM protocols for streamlined PHC therapeutic processes - Evidence-based checklists and PM research database for accurate diagnoses - Piloting PM treatment models in health centers for optimized care - Comparative studies of PM vs. conventional therapies to validate outcomes - Shared treatment protocols for PM and conventional medicine integration - Interdisciplinary collaboration to bridge PM and biomedical approaches - Evidence-based frameworks to enhance physician buy-in and patient outcomes
	Designing Community-Based Lifestyle Interventions Based on Persian Medicine in PHC	-Developing programs for the modification of dietary patterns, sleep quality, and stress management based on the principles of Iranian Traditional Medicine in community health centers - Providing specialized training in traditional nutrition for specific populations (e.g., pregnant women, the elderly, and children) within primary health care settings - Promoting appropriate physical activity tailored to different age groups, taking into account individual temperaments -Implementing community-based intervention programs aimed at reducing the prevalence of lifestyle-related diseases
	Enhancing Public Awareness and Acceptance of PM within the Health Care System	- Producing scientific content and educational documentaries to clarify the fundamental concepts of Iranian Traditional Medicine and distinguish it from folkloric or non-evidence-based practices within the primary health care system - Launching awareness campaigns through social media platforms and health centers to correct misconceptions and promote a scientific attitude toward Iranian Traditional Medicine

Table 4 (continued)

Maine Themes	*Subthemes*	*Final codes*
	Provision of PM Services to Vulnerable Populations	-Establishing Specialized Care Systems for the Elderly through the Implementation of Temperament-Based Nutritional Regimens in Primary Healthcare Centers -Delivering Iranian Traditional Medicine-Based Health Services in Underserved and Deprived Areas via Rural and Community Health Houses -Identifying Social and Economic Barriers to Accessing PM Services and Designing Practical Strategies to Improve Health Outcomes in Vulnerable Populations
	Policy and Regulatory Support for PM Integration in PHC	- Strengthening collaboration among the Ministry of Health, universities, and healthcare centers to enhance the scientific and operational standing of PM -Engaging organizations to promote a PM-based health culture through education and policy focused on Iranian Traditional Medicine -Developing monitoring mechanisms to assess the effectiveness of PM programs in PHC, emphasizing PM practices
	Innovation and Digitalization of PM Services in PHC	- Digitalization of PM Consultation Services to Enhance Patient Access and Reduce Unnecessary In-Person Visits - Utilizing Digital Health Technologies to Deliver Personalized Education and Develop Clinical Decision Support Systems in the Field of PM - Designing and Implementing Temperament-Based Referral Systems to Guide Patients to PM Specialists within PHC Centers
	Strategies for Reducing Physician Resistance and Fostering Greater Acceptance of PM in PHC	- Increasing General Practitioners' Awareness of the Scientific Evidence and Therapeutic Mechanisms Underlying PM through Continuing Education Programs - Developing Interactive, Problem-Based Educational Programs Grounded in Clinical Evidence to Reduce Physicians' Skepticism -Designing Integrated Referral Systems to Facilitate Collaboration between PM and Conventional Medicine Practitioners in the Treatment Process - Organizing Scientific Forums and Experience-Sharing Sessions to Promote the Successful Integration of PM and Conventional Therapies - Conducting Interdisciplinary Research and Disseminating Scientific Findings to Enhance the Credibility and Acceptance of PM within the Medical Community
	Utilizing Media for Health Education and Cultural Promotion Centered on PM	- Producing Credible, Evidence-Based Educational Content to Raise Public Awareness of the Scientific Foundations and Principles of PM - Implementing Documentary Programs, Scientific Dialogues, and Their Dissemination through Mass Media to Enhance Public Scientific Acceptance of PM - Exploring and Developing Strategies Based on Social and Digital Engagement to Increase Public Participation in the Education and Implementation of PM within the PHC System

Perspectives of senior managers and the role of policymakers in integrating PM

Participants emphasized that senior health officials often lack a unified, evidence-based strategy for integrating PM. In contrast to the structured support seen in domains like nutrition or mental health, PM remains marginalized in decision-making processes.

> *"PM integration falters in our center because managers offer no clear plan or resources. Unlike nutrition or mental health programs, PM feels like a low-priority matter, which discourages our efforts." (CHW-04).*

Insufficient focus on PHC and the predominance of curative services

Despite the preventive potential of PM, participants noted that the health system remains largely focused on specialized and curative services. This imbalance sidelines prevention-centered approaches, especially within PHC.

> *"The system prioritizes hospital treatments over prevention. PM could reduce chronic conditions, like diabetes, through lifestyle advice, but PHC is undervalued, which feels like a lost opportunity." (CHW-13).*

Quantitative bias in the health system and its impact on service quality

Respondents described a work environment shaped by pressure to meet numerical targets. The overemphasis on statistics undermined care quality, decreased provider motivation, and sometimes led to inaccurate reporting.

> *"We're pressured to meet quantitative targets and complete forms, prioritizing quantity over quality. This limits our ability to focus on service users and demotivates us." (CHW-14).*

Physician resistance to PM and the associated acceptance challenges

The resistance of general practitioners often rooted in limited exposure to the principles and evidence base of

PM was seen as a major obstacle to public acceptance. Such skepticism, when expressed openly, discouraged patients from trusting the services offered.

> *"Some doctors dismiss PM as unscientific in front of service users, like during a recent consultation. This erodes trust in our recommendations and makes our role feel undervalued." (CHW-09).*

Lack of transparency and unrealistic approaches in program implementation

Participants expressed concerns about the lack of transparent monitoring and realistic evaluation. In some instances, performance data were exaggerated to satisfy upper management, obscuring the actual progress and limiting improvement.

> *"Managers expect perfect reports, so we sometimes inflate data to avoid criticism. This dishonesty, like overstating completed questionnaires, hides real barriers to effective PM integration." (CHW-10).*

Theme 3: challenges in health education and the acceptance of health information

This theme highlights the communication gaps, misinformation, and public skepticism that undermine the effective delivery of PM education in PHC settings.

Spread of misinformation and public distrust

Participants frequently noted that clients rely more on online sources than on health center recommendations. Contradictions between professional guidance and unverified internet content have created confusion and resistance to medical advice.

> *"Many service users, like a young mother I advised last week, say, 'I read something different online.' This reliance on unverified information makes it hard to convince them of PM recommendations, which is frustrating." (CHW-12).*

Limitations of conventional education methods

CHWs described traditional educational formats such as brochures and PDF files as ineffective. They emphasized the need for interactive tools—such as videos and practical demonstrations—to better engage clients and improve comprehension.

> *"Handing out brochures feels ineffective; service users rarely read them. A short video, like one explaining PM diets, would grab their attention and change behaviors more effectively." (CHW-04).*

Inadequate scientific explanation

Several participants indicated that patients often ignore recommendations unless they understand the reasoning behind them. Lack of in-depth explanation due to limited staff training was viewed as a significant obstacle.

> *"When I explain the science behind PM advice, like why certain foods suit their temperament, service users listen. But without enough training, I struggle to provide clear reasons, so they often ignore me." (CHW-11).*

Weaknesses in CHWs training

Many interviewees reported insufficient training to respond confidently to patient inquiries about PM. The absence of structured, continuous learning systems contributed to staff uncertainty.

> *"Service users ask detailed questions about PM, like how it helps their health, but our training is just sporadic PDFs. I feel uncertain answering, which weakens their trust." (CHW-06).*

Limited use of mass media

Participants saw underutilization of mass media and digital platforms as a missed opportunity. They believed these tools could help counter misinformation and foster public trust.

> *"If TV or social media shared clear, relatable PM advice, like a segment on lifestyle tips, it would build trust faster than outdated flyers that service users ignore." (CHW-10).*

Theme 4: human resource constraints and professional motivation

This theme explores organizational and psychological barriers—such as high workload, lack of recognition, and insufficient support that hinder health workers' capacity to implement PM.

High workload and task overload

Many participants expressed frustration over excessive responsibilities, often unrelated to PM, which reduced their ability to deliver quality services. Overlapping duties with maternal health, elderly care, vaccinations, and environmental health were particularly burdensome.

> *"I'm juggling vaccinations, maternal care, and long PM questionnaires daily. It's overwhelming, and I can't give service users, like an elderly man yesterday, the time they need." (CHW-02).*

Lack of motivation and supportive incentives in the workforce

Health workers reported that no system existed to reward higher performance, leading to demotivation and burnout. Some noted discrepancies in performance-based payments, which further undermined morale.

"Despite extra effort on PM tasks, there is no recognition or fair compensation. This lack of incentives feels disheartening and diminishes our motivation." (CHS-01).

Systemic pressures and lack of managerial support in PHC

Participants described a punitive work environment where mistakes led to reprimand rather than support. This culture of fear encouraged superficial data entry rather than meaningful patient interaction.

"We complete PM forms to avoid managerial criticism, not to improve quality. This focus on avoiding blame feels demoralizing and limits meaningful service user interactions." (CHW-05).

Inadequate training and capacity building for PM implementation

CHWs lack effective training programs for PM, relying on lengthy, non-interactive PDFs, with heavy workloads and a shortage of qualified trainers limiting hands-on instruction and professional development.

"We receive only PDFs for PM training, with no workshops or expert guidance. This lack of preparation leaves us struggling to address service user questions effectively." (CHW-03).

Underutilization of expert staff and misalignment in task assignments

Nutrition experts and PM specialists are underutilized, unclear roles and a lack of referral systems cause inefficiencies, physician resistance overburden frontline CHWs, and fragmented care reduces PM service quality.

"Nutrition experts in our center could effectively clarify PM lifestyle advice, but they are rarely involved. This increases our workload and compromises the quality of PM services." (CHW-09).

Detrimental impact of occupational stress on mental well-being and service quality

Repetitive tasks make CHWs feel robotic, fear of reprimands fuels anxiety, lack of support reduces motivation, and low self-worth increases burnout, lowering service quality.

"Repetitive PM form-filling is perceived as repetitive and impersonal, and the fear of blame generates stress. This undermines our motivation and limits meaningful engagement with service users." (CHW-06).

Theme 5: facilitating factors and participant-driven strategies for integrating PM into PHC

Analysis of participants' insights revealed a multifaceted framework of strategies for advancing the integration of PM into Iran's PHC system. These strategies spanned capacity building, protocol development, lifestyle interventions, policy reform, digital transformation, and public communication. The subthemes below outline the proposed mechanisms for systemic improvement.

Capacity building and educational empowerment of CHWs in PM

Participants emphasized the importance of structured, evidence-based training to ensure the successful implementation of PM in PHC. They recommended interactive, hands-on learning approaches including workshops, clinical simulations, and mobile-based modules to improve practitioners' competence and confidence. Strengthening workforce empowerment through continuous education, digital tools, and expert-led dialogue was viewed as essential for enhancing the quality of PM service delivery across the health system.

"Interactive workshops and mobile-based modules, rather than static files, would build our confidence to deliver PM services effectively." (CHW-11)

Standardized protocols and collaborative integration of PM with conventional medicine in the healthcare system

Participants called for standardized, evidence-based PM protocols, including checklists and a research database, to streamline diagnostics and referrals, urged piloting integrated PM treatment models in PHC, proposed comparative studies to validate PM outcomes, and emphasized interdisciplinary collaboration to bridge PM with conventional medicine, enhancing physician acceptance and patient care.

"Clear, evidence-based PM guidelines would simplify referrals and encourage physicians to view PM as complementary to conventional care." (CHS-02)

Designing community-based lifestyle interventions based on PM in PHC

Respondents proposed community-based PM programs, including dietary workshops and stress management tailored to individual temperaments. They suggested training CHWs to educate pregnant women, children, and

the elderly on PM-based nutrition. Customized physical activity plans for various age groups, including seniors, were recommended to align with PM principles. Piloting these interventions was deemed essential to reduce lifestyle-related diseases.

> *"Workshops on PM-based lifestyle changes would promote healthier behaviors among service users and reduce chronic conditions." (CHW-05).*

Enhancing public awareness and acceptance of PM within the health care system

Participants emphasized the need for scientifically grounded public education to differentiate evidence-based PM from informal, non-expert practices. Many believed that the lack of clear communication and public engagement strategies has contributed to confusion and mistrust. Utilizing mass media and digital platforms to disseminate accurate information and correct misconceptions was widely recommended.

> *"Clear public education through media would help service users distinguish evidence-based PM from unverified practices, fostering greater trust." (CHW-06).*

Provision of PM services to vulnerable populations

Participants proposed specialized PM care for the elderly using temperament-based nutrition and lifestyle regimens in PHC, advocated delivering PM services with similar guidance in underserved areas via community health houses, and suggested addressing social-economic barriers to enhance health outcomes for vulnerable populations.

> *"Tailored PM lifestyle interventions in community health houses would significantly improve health outcomes for underserved service users." (CHW-04).*

Policy and regulatory support for PM integration in PHC

Participants urged collaboration among the Ministry of Health, universities, and healthcare centers to advance PM's scientific standing, proposed engaging organizations to promote PM-based health culture through education, recommended monitoring mechanisms to evaluate PM program effectiveness in PHC, and emphasized policies to integrate PM, ensuring quality care.

> *"Strong policies and university partnerships would establish PM as a credible component of PHC, ensuring quality care." (CHW-02).*

Innovation and digitalization of PM services in PHC

Apps and online tools make PM consultations more accessible for patients, digital platforms provide tailored education and support for doctors' decisions, temperament-based referral systems connect patients to PM specialists in health centers, and these innovations improve care efficiency and reach.

> *"Digital PM tools, like mobile apps, would make consultations more accessible and help us guide service users more effectively." (CHW-14).*

Strategies for reducing physician resistance and fostering greater acceptance of PM in PHC

Continuing education and interactive programs increase doctors' awareness of PM evidence, integrated referral systems and scientific forums promote collaboration, and interdisciplinary research enhances PM's credibility in PHC.

> *"Evidence-based workshops and collaborative forums would make PM more credible to physicians, reducing their resistance." (CHW-05).*

Utilizing media for health education and cultural promotion centered on PM

Easy-to-understand content and TV shows explain PM's science to the public, documentaries and talks build trust in PM, and social media campaigns encourage people to embrace PM education in health centers.

> *"Relatable media campaigns, such as TV programs on PM's benefits, would enhance public trust and engagement with PM services." (CHS-04).*

Discussion

This qualitative study explored the challenges and examined practical strategies for integrating PM into PHC from the perspectives of CHWs and CHSs. While challenges were discussed based on the thematic categories identified in the findings, opportunities and proposed solutions were analyzed across three interconnected levels: individual, organizational, and policy/system-level to provide a structured framework for addressing integration gaps.

Challenges

Challenges in the design and integration of temperament-based assessment tools in PHC

Participants reported considerable difficulties in administering PM-related questionnaires, primarily due to technical and software limitations. These problems compromised data quality and user satisfaction.

These findings align with Chen et al. [22]. who described similar technical challenges in digital health platforms. Prior research has emphasized the importance of user-centered design to enhance the effectiveness of electronic tools and ensure sustained engagement [23].

Structural and policy-level barriers to integrating PM into the health system

The integration of PM into PHC faces critical policy-level obstacles, including lack of political will, strategic planning, and sustainable funding [24, 25]. Successful integration requires robust operational infrastructure and multilevel support, as demonstrated in prior public health programs [26]. Another recurring theme was the overemphasis on curative services over prevention, reflecting a longstanding imbalance in Iran's health system [27, 28]. Participants noted that unlike prior nationwide initiatives like fertility reduction [29], preventive strategies for NCDs have lacked similar investment.

Moreover, the current focus on numerical reporting and service volume was said to come at the expense of care quality. This concern is supported by studies on health system reform, which found that performance metrics focused on quantity can distort provider behavior and reduce data accuracy [30]. Participants advocated for a paradigm shift toward quality-based indicators, such as adherence to clinical guidelines, patient engagement levels, and outcome-based performance measures.

Importantly, resistance from physicians emerged as a critical impediment—one that is rooted not in individual attitudes alone but in structural deficiencies within medical education and health policy. Many physicians are unfamiliar with the theoretical foundations and clinical applications of PM, resulting in skepticism and occasional opposition to its use in public clinics. These attitudes are reinforced by the lack of regulatory frameworks that define PM's scope of practice or integrate it formally into care pathways. This phenomenon has also been documented in international research, where insufficient provider training and institutional recognition are shown to impede the uptake of complementary medicine approaches [31–33].

Participants underscored the need for structured, interdisciplinary educational programs that combine theoretical instruction with hands-on clinical training. Such efforts would not only improve provider competence and patient trust, but also legitimize PM as a credible component of mainstream care [34]. Additionally, participants called for transparent, real-time data systems to monitor the integration process and ensure adaptive policy responses based on field realities.

Challenges in health education and the acceptance of health information

Participants indicated that misinformation and inconsistent communication about PM contribute to public confusion and resistance. While digital platforms and social media have the potential to enhance health literacy, their unregulated nature often results in the spread of misleading or inaccurate information. Studies by Ventola [35] and Waszak et al. [36] confirm that false or oversimplified content on social media can undermine trust in formal health services.

One driver of mistrust is the failure of health professionals to provide clear and scientifically grounded explanations. When patients do not understand the rationale for health recommendations, adherence drops. Sharkey et al. [37] similarly emphasize that patient comprehension of medical logic is essential for behavior change. Conventional health education methods—such as pamphlets or PDFs—were deemed ineffective. In contrast, interactive videos, relatable messaging, and social media content were perceived as more engaging and trustworthy. This aligns with Arzani et al. [38], who advocate multimedia-based interventions to improve health communication in low-literacy populations.

Weaknesses in internal training systems for CHWs also emerged as a significant challenge. Fragmented, intermittent training has diminished providers' readiness to address patients' specialized questions. Studies corroborate this finding, emphasizing the need for continuous, structured, evidence-based educational frameworks for health professionals [39, 40]. Without such systems, improvements in specialized knowledge, effective responsiveness, and public trust cannot be achieved. Conversely, mass-media and social-media platforms were identified as a promising opportunity for broadly disseminating PM education. Multiple studies indicate that using concise educational captions, short videos, and digital information campaigns can markedly enhance the impact of health messages [41, 42].

Human resource constraints and professional motivation

The integration of PM into existing PHC workloads—without corresponding increases in time, support, or compensation—was widely recognized as a critical barrier to effective implementation. Key contributing factors included the lack of structured training, ineffective incentive systems, and limited involvement of other key personnel, particularly nutrition officers, who play a central role in lifestyle and dietary counseling. These challenges were repeatedly linked to professional burnout, diminished service quality, and declining provider commitment.

International evidence confirms that unmanaged workload expansion is a leading driver of burnout among

health workers. For example, a study in *JAMA Health Forum* reported that over 50% of U.S. physicians experienced at least one symptom of burnout, which was associated with lower job satisfaction, increased clinical errors, and higher attrition rates [43]. Our findings mirrored this pattern in the Iranian context, where PHC providers are already responsible for a wide range of services—including maternal and geriatric care, immunizations, mental health support, and now traditional medicine consultations—often without any additional staffing, training, or financial support.

Moreover, participants expressed dissatisfaction with the current performance evaluation system, noting that good performance frequently goes unrecognized, while minor errors are met with swift reprimand. This reflects findings by Willis Shattuck et al., who showed that non-transparent reward structures breed organizational indifference and reduce staff motivation [44]. As one participant noted:

Another major concern was the inadequacy of current training systems. Most PM-related training was delivered passively via PDF files, lacking practical, hands-on instruction. This undermined providers' confidence in delivering credible PM services. Research in BMC Primary Care has shown that theoretical education alone—without feedback or applied clinical components—is insufficient to develop competency in new service areas [45]. Heavy workloads and limited opportunities for ongoing professional development further constrained providers' ability to acquire and apply new knowledge effectively.

Finally, the underutilization of nutrition officers in the integration process was seen as a missed opportunity. Despite their potential to support chronic disease prevention and holistic patient counseling, unclear policies and occasional inter-professional resistance have limited their involvement. This contradicts a growing body of evidence supporting interdisciplinary collaboration as essential to improving health outcomes and patient satisfaction [46]. To ensure the success of PM integration, nutrition officers must be actively engaged as core members of the PHC team.

Strategic approaches for strengthening the integration and quality of PM in the PHC system

Introduce problem-based learning modules focused on nutrition, lifestyle modification, and physical activity to strengthen chronic-disease prevention. Additionally, strategically leveraging social-media platforms to disseminate evidence-based health messages has been shown to produce measurable improvements in population health [47].

Level 1: policy and governance

Development of a national integration strategy

The absence of a unified national vision for integrating PM into PHC has led to fragmented initiatives, institutional inconsistency, and unclear implementation mandates at the service delivery level. Participants in this study frequently noted the lack of strategic direction and structured support from the Ministry of Health. This gap reflects a lack of alignment with the WHO Traditional Medicine Strategy (2014–2023), which underscores the importance of unified national policies, regulatory frameworks, and sustainable financing mechanisms [48]. Experiences from countries like China, South Korea, and Taiwan further highlight that incorporating traditional medicine into formal national health strategies increases public trust and facilitates structured, long-term implementation [49–52]. It is therefore imperative for the Ministry of Health to develop a formal roadmap for PM integration, complete with implementation timelines, monitoring indicators, and cross-sectoral coordination.

Regulatory and financial support

In addition to strategic planning, the integration of PM into PHC requires dedicated regulatory and financial frameworks. Participants in this study repeatedly emphasized the absence of earmarked funding for training programs, infrastructure development, and service supervision. This lack of financial commitment was perceived as a major obstacle to program sustainability.

Moreover, without adequate budgetary support, PM initiatives remain confined to isolated pilot settings and cannot be expanded to other regions or institutionalized within the national health system. In other words, the current funding gap directly limits the scalability of PM integration efforts—that is, the ability to replicate and sustain these services at a broader, system-wide level.

International experience reinforces this point: in countries where traditional medicine has been successfully integrated into PHC, such as China and South Korea, national programs were backed by specific budget lines, legal mandates, and monitoring systems that ensured consistent service quality and accountability [48–50]. Iran should adopt similar mechanisms to support the expansion and institutionalization of PM across all levels of care.

Unified clinical guidelines and internal referral systems

Standardizing operational procedures is critical for institutionalizing PM in PHC. Participants in this study reported a lack of alignment between PM assessment tools and existing PHC documentation, which led to service fragmentation, confusion among staff, and duplicated efforts. They also pointed to the absence of formal

referral mechanisms for PM-related services within the PHC structure.

Similar structural and procedural challenges were reported in other countries—such as Japan and South Korea—before the development of harmonized national guidelines. For example, Motoo et al. documented how Japan successfully reduced care fragmentation by implementing unified clinical protocols that integrated conventional and traditional perspectives, thereby enhancing both care coordination and interdisciplinary collaboration [33]. These findings are echoed in the WHO Traditional Medicine Strategy (2014–2023), which advocates for the development of national guidelines and internal referral systems to improve service integration and clinical continuity [48]. Iran can benefit from adopting such models by embedding PM protocols into routine care pathways and creating formal, bidirectional referral mechanisms between general PHC providers and PM specialists.

Level 2: organizational alignment and digital infrastructure

Despite the inclusion of PM tools—such as temperament assessment questionnaires—within Iran's national PHC documentation platform (SIB), the system is not electronically connected to higher levels of care. As a result, referrals to PM specialists cannot be made through the existing infrastructure, limiting continuity of care and formal service integration.

Participants emphasized that while PHC providers document PM-based interventions in SIB, the absence of interoperability with secondary and tertiary care levels prevents bidirectional communication and structured follow-up. This structural disconnect isolates PM activities within the primary level and hampers team-based, multi-tiered service delivery.

The importance of digital integration is underscored in international frameworks. WHO's Traditional Medicine Strategy (2014–2023) recommends incorporating traditional medicine data into national electronic health records to enhance care coordination, facilitate referrals, and improve clinical decision-making. To move toward a truly integrated system, Iran should strengthen the SIB platform by enabling referral pathways, feedback mechanisms, and shared access between PHC providers and PM specialists [48].

Level 3: service delivery and community

Practical, multimedia training for CHWs and PHC staff

Empowering frontline staff through hands-on training is fundamental to successful PM integration. According to participants, current training methods are theoretical and lack practical depth, often consisting only of digital booklets. This resulted in low confidence and hesitance to deliver PM services. Arzani et al. found that multimedia, participatory formats—such as videos and workshops—are more effective for health worker capacity-building [38]. WHO also promotes blended training approaches combining digital learning with on-the-job practice [53]. Therefore, it is recommended that national programs transition toward interactive, modular training for PHC providers, with tailored PM content and clinical simulations.

Interdisciplinary education to address physician resistance

Physician skepticism emerged as a key barrier in this study, particularly when general practitioners expressed doubts about PM in front of patients. This undermines public confidence and discourages service uptake. Similar findings have been reported in Saudi Arabia, the U.S., and Japan, where lack of exposure to traditional medicine correlates with negative attitudes [31–33]. Interdisciplinary education—bringing PM and conventional providers together—has shown promise in improving mutual understanding [34]. Thus, including PM modules in continuing medical education and facilitating joint case reviews is essential to reduce resistance and enhance team-based care.

Targeted PM programs for older adults

Despite PM's holistic strengths, participants noted a lack of services tailored to high-risk populations such as the elderly. Older adults could particularly benefit from PM approaches due to their emphasis on temperament, functional balance, and natural remedies. Park and Canaway describe how China successfully incorporated Tai Chi, acupuncture, and herbal therapies into elder care programs, improving quality of life and physical functioning [54]. Drawing on these insights, Iran should develop elder-specific PM programs featuring temperament assessments, home-based services, and herbal protocols for chronic disease management [54, 55].

Integrating PM into Iran's PHC system requires a coordinated, multi-level approach

At the policy level, national strategy and legal frameworks must provide a supportive backbone. At the organizational level, operational alignment and digital readiness are essential. At the service delivery level, workforce empowerment, interprofessional collaboration, and tailored care packages will determine success. When informed by evidence and aligned with cultural values, this integrated model can serve as a regional exemplar of innovation in traditional medicine.

Limitations

This study has several limitations that should be acknowledged. While it provides valuable insights into the integration of PM within the PHC system, the findings are

context-specific and may not be readily transferable to other healthcare settings. Moreover, the study focused on the perspectives of family health workers and CHWs; perspectives from patients and policymakers who could have offered complementary views were not included due to time and resource constraints.

Conclusion

This study explored barriers and facilitators to integrating Persian Medicine into Iran's PHC system through inductive thematic analysis of experiences from community health workers and community health supervisors. Participants identified challenges, including software limitations, inadequate training, physician resistance, heavy workloads, and low public trust due to conflicting information, alongside structural barriers like the dominance of curative services. Proposed facilitators include user-friendly tools, continuous hands-on training, involving professionals like nutritionists, community-based interventions, and evidence-informed public education.

Despite lacking patient and policymaker perspectives, which limits broader insights, the study offers practical findings from implementers. Policymakers are recommended to align Persian Medicine with PHC priorities, ensure sustainable funding, foster interprofessional collaboration, and invest in public outreach for sustainable integration.

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Authors' contributions
R.M. (Reyhaneh Mostafanejad) contributed to data collection, data analysis, interpretation of results, and drafting of the manuscript. J.S.T. (Jafar Sadegh Tabrizi) contributed to the conceptualization and overall supervision of the study and provided critical revisions to the manuscript. A.B.K. (Alireza Bagherzadeh-Karimi) contributed to methodological guidance, interpretation of findings in the context of Persian Medicine, and critical review of the manuscript. S.M.I. (Sayyedeh Mobina Izadkhah) contributed to the data collection through conducting the qualitative interviews. R.K.Z. (Rahim Khodayari-Zarnaq) led the study conception and design, coordinated the research process, and supervised the final manuscript preparation. All authors read and approved the final version of the manuscript.

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Data availability
The datasets generated and/or analyzed during the current study are **not publicly available** due to participant confidentiality but are **available from the corresponding author on reasonable request**

Declarations

Ethics approval and consent to participate
This study was approved by the Ethics Committee of Tabriz University of Medical Sciences (Ethics Code: IR.TBZMED.REC.1402.611).
Written informed consent was obtained from all participants before the interviews.
All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the Declaration of Helsinki.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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