Development of a Traditional Chinese Medicine Health Behavior Scale and Examination of Its Reliability and Validity (Post-print)

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Abstract

Background: Traditional Chinese Medicine (TCM) health behavior is an important approach to maintaining and promoting residents' health. Scientifically assessing the level of TCM health behavior has significant practical implications for health management and intervention, yet standardized, localized assessment instruments for TCM health behavior are currently lacking in China. Objective: To develop a TCM Health Behavior Scale and to examine its reliability and validity. Methods: Guided by the conceptual framework of TCM health behavior, an initial scale was constructed through literature review, semi-structured interviews, and group discussions. A test version of the scale was formed after expert consultation and a pilot survey. From October to December 2024, convenience sampling was used to recruit 590 community residents aged 18–80 years from Sichuan, Hubei, and Hunan provinces. A total of 641 questionnaires were distributed and 590 valid questionnaires were recovered, yielding an effective response rate of 92.04%. Item analysis and reliability and validity testing were conducted for the scale. Results: An initial scale comprising 9 dimensions and 41 items was preliminarily developed through literature review and qualitative interviews. After refinement via expert consultation, the two rounds of expert positive response rates were both 100%, with rates of opinion provision of 95% and 74%, respectively. The expert authority coefficients were 0.889 and 0.903, and Kendall's coefficients of concordance were 0.168 and 0.073 (both $P<0.05$). Based on expert feedback and group discussions, a test version of the scale consisting of 9 dimensions and 40 items was finalized. After reliability and validity testing, a formal scale with 8 dimensions and 34 items was established. Exploratory factor analysis extracted 8 common factors, with a cumulative variance contribution rate of 70.944%, and item loadings ranging from 0.548 to 0.899. Confirmatory factor analysis showed that the model fit indices were as follows: chi-square to

degrees of freedom ratio ($ $2/df)=1.713, root mean square error of approximation (RMSEA)=0.049, goodness-of-fit index (GFI)=0.860, comparative fit index (CFI)=0.945, normed fit index (NFI)=0.879, Tucker-Lewis index (TLI)=0.937, and incremental fit index (IFI)=0.946, indicating an overall satisfactory model fit. All item factor loadings in the model were >0.5; construct reliability (CR) values were all >0.7; the average variance extracted (AVE) ranged from 0.478 to 0.682; and the absolute values of the inter-dimension correlation coefficients ranged from 0.007 to 0.583. Indicators of convergent and discriminant validity were within acceptable ranges. The scale-level content validity index (S-CVI) of the total scale was 0.935, and the item-level content validity index (I-CVI) for each item ranged from 0.890 to 1.000. The Cronbach' s α coefficient for the total scale was 0.918, and the split-half reliability was 0.962, indicating good reliability. Conclusion: The TCM Health Behavior Scale demonstrates good reliability and validity and can serve as a localized tool for health managers to assess the level of TCM health behavior among Chinese residents.

Full Text

Development and Validation of the Traditional Chinese Medicine Health Behaviors Scale

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Abstract

Background Traditional Chinese Medicine (TCM) health behaviors play an important role in maintaining and promoting public health. Scientifically assessing the level of TCM health behaviors has practical significance for health management and intervention. However, there is currently a lack of standardized localized assessment tools for TCM health behaviors in China.

Objective To develop a TCM Health Behavior Scale and examine its reliability and validity.

Methods Guided by the conceptual framework of TCM health behaviors, the initial scale was developed through literature review, semi-structured interviews,

and group discussions. A test version was formed after expert consultation and a pilot survey. From October to December 2024, 590 community residents aged 18–80 from Sichuan, Hubei, and Hunan provinces were selected by convenience sampling. A total of 641 questionnaires were distributed, with 590 valid responses (92.04% effective rate). Item analysis and reliability/validity tests were conducted.

Results An initial scale of 9 dimensions and 41 items was constructed based on literature review and qualitative interviews. After expert revision, both rounds of consultation achieved 100% response rates, with suggestion rates of 95% and 74%, respectively. Expert authority coefficients were 0.889 and 0.903, and Kendall' s W values were 0.168 and 0.073 ($P<0.05$). A test version with 9 dimensions and 40 items was finalized through expert feedback and panel discussions. After psychometric testing, the final scale comprised 8 dimensions and 34 items. Exploratory factor analysis extracted 8 common factors with a cumulative variance contribution of 70.944%, with item loadings ranging from 0.548 to 0.899. Confirmatory factor analysis indicated good model fit: $\chi^2/df=1.713$, RMSEA=0.049, GFI=0.860, CFI=0.945, NFI=0.879, TLI=0.937, IFI=0.946. All item factor loadings exceeded 0.5, CR values were >0.7, AVE ranged from 0.478 to 0.682, and inter-dimension correlation coefficients ranged from 0.007 to 0.583, indicating acceptable convergent and discriminant validity. S-CVI was 0.935, and I-CVI ranged from 0.890 to 1.000. The overall Cronbach' s α was 0.918, and split-half reliability was 0.962, demonstrating good reliability.

Conclusion The TCM Health Behavior Scale demonstrates good reliability and validity, and can serve as a localized tool for health managers to assess the TCM health behavior levels of Chinese residents.

Keywords: Chinese medicine health behaviors; Health promotion; Scale; Validity; Reliability

Introduction

With accelerated population aging and changes in residents' lifestyles, the incidence of chronic diseases in China continues to rise, with chronic disease deaths accounting for over 80% of total mortality [1]. Chronic disease prevention and treatment has become a major challenge in public health. The "Healthy China 2030" Planning Outline explicitly proposes to "give full play to the unique advantages of Traditional Chinese Medicine" [2], and the National Health Commission has also emphasized promoting TCM health promotion actions and leveraging the important role of TCM in Healthy China construction [3]. With its broad market demand [4], high cultural identity [5], and characteristics of being "simple, convenient, effective, and safe" [6,7], TCM demonstrates tremendous potential in chronic disease prevention and treatment.

TCM health behavior refers to a multi-stage, multi-dimensional behavior aimed

at preventing, maintaining, or promoting physical, mental, social, and moral health for oneself and others under the guidance of TCM health preservation theories and techniques [8]. Currently, although domestic and international scholars have explored assessment tools for residents' healthy lifestyles or TCM health literacy [9-12], there is still a need to develop specific tools with TCM characteristics that can scientifically and comprehensively assess health behaviors among Chinese residents. Therefore, this study developed and validated a TCM Health Behavior Scale based on the TCM health behavior conceptual framework, providing a scientific basis and practical tool for health managers to assess residents' TCM health behavior levels and develop personalized health management plans.

The TCM health behavior conceptual framework [8] integrates Pender' s Health Promotion Model (HPM) [13] and TCM health preservation theories [14,15], constructed through a three-stage mixed concept analysis. It encompasses eight core attributes: meridian-point health preservation, medicinal diet health preservation, daily regimen health preservation, exercise health preservation, emotional health preservation, simple health preservation, utilization of TCM health resources, and participation in TCM health decision-making, along with four antecedents (individual, social, natural, and TCM characteristics) and three consequences (self-health, helping others' health, and cultural promotion). Based on this framework, the research team initially divided the scale into nine dimensions: utilization of TCM health resources, participation in TCM health decision-making, meridian-point health preservation, medicinal diet health preservation, daily regimen health preservation, exercise health preservation, emotional health preservation, simple health preservation, and self-actualization.

Methods

1.1 Theoretical Basis and Scale Development

1.1.1 Theoretical Framework The conceptual framework of TCM health behaviors served as the theoretical guidance [8]. This framework integrates Pender' s Health Promotion Model (HPM) [13] and TCM health preservation theories [14,15], constructed through a three-stage mixed concept analysis, covering meridian-point health preservation, medicinal diet health preservation, daily regimen health preservation, exercise health preservation, emotional health preservation, simple health preservation, utilization of TCM health resources, participation in TCM health decision-making, and eight other core attributes, with four antecedents (individual, social, natural, and TCM characteristics) and three consequences (self-health, helping others'health, and cultural promotion). Based on this, the research team initially divided the scale into nine dimensions: utilization of TCM health resources, participation in TCM health decision-making, meridian-point health preservation, medicinal diet health preservation, daily reg-

imen health preservation, exercise health preservation, emotional health preservation, simple health preservation, and self-actualization.

1.1.2 Literature Review A systematic search was conducted in Chinese databases (CNKI, Wanfang, VIP, CBM) and English databases (PubMed, Web of Science, ProQuest, EBSCO). Chinese search terms included the nine predetermined dimension names plus "TCM health preservation/care," "preventive treatment of disease," "health behavior," and "health promotion lifestyle." English search terms included "Traditional Chinese Medicine," "TCM," "Health Maintenance of Traditional Chinese Medicine," "Preventive Treatment of Disease," "Health," *and* " *Behavior*." The search timeframe was from database inception to June 2024, with manual backward citation tracking. Full-text articles, policies, and consensus guidelines related to each dimension, TCM health preservation/care, and health behaviors/lifestyles were included; duplicate literature, conference abstracts, and documents from which relevant content could not be extracted were excluded.

1.1.3 Semi-Structured Interviews From June to July 2024, purposive sampling was used to select 10 community residents with TCM health behaviors and 7 community staff members with TCM chronic disease management experience or health activity organization experience from Wuhan City, Hubei Province and Neijiang City, Sichuan Province for one-on-one semi-structured interviews. Interviews were conducted both online and offline, focusing on the nine predetermined dimensions to explore residents' actual behavioral performance. Core questions included: "What specific behaviors do you think are included in a certain dimension?" and "What specific behaviors in a certain dimension do you usually practice?" The aim was to supplement scale items through respondents' practical experiences. The principles of informed consent, privacy protection, and voluntariness were followed.

1.1.4 Expert Consultation Expert consultation was conducted via WeChat and email from August to September 2024 until expert opinions converged. Expert inclusion criteria were: (1) over 10 years of work experience in TCM, chronic disease management, TCM nursing, geriatric nursing, or related fields; (2) master' s degree or above, or intermediate professional title or above; (3) familiar with TCM health preservation or health behavior knowledge; and (4) willing to participate and provide optimization suggestions. The consultation questionnaire included an introduction (research background, purpose, and instructions), the initial scale (9 dimensions, 41 items), and an expert information form (basic information, familiarity, and judgment basis). Item importance was rated using a 5-point Likert scale (1= "very unimportant" to 5= "very important").

Item exclusion criteria were: (1) mean importance score $<$ (mean - standard deviation); (2) full mark frequency $<$ (mean - standard deviation); and (3) coefficient of variation $\geq$ (mean + standard deviation) [16]. Items meeting all

three criteria were deleted; those meeting 1-2 criteria were decided upon based on expert opinions, professionalism, and group discussions.

1.1.5 Scale Language Debugging In September 2024, 30 community residents were recruited from Guihuayuan Community and Danan Street Community in Neijiang City, Sichuan Province to participate in testing. Data were collected via WeChat questionnaire links. Inclusion criteria were ages 18-80 and voluntary cooperation; exclusion criteria were severe cognitive or visual/hearing impairments that might affect response accuracy.

1.2 Formal Survey

1.2.1 Study Subjects and Sample Size According to scale development and reliability/validity testing requirements, the sample size should be 5-10 times the number of items, and exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) require two independent samples with similar sample sizes [17]. The test version contained 40 items; considering a 10% invalid questionnaire rate, the theoretical sample size was 220-440. Some researchers suggest expanding sample size as much as possible to enhance result stability and reduce error [18].

From October to December 2024, convenience sampling was used to select community residents from: Wuhan City, Hubei Province (Wunan Community, Lejiancheng Community, Huangjiahu Community); Neijiang City, Sichuan Province (Guihuayuan Community, Danan Street Community) and Zigong City, Sichuan Province (Beihu Community, Haitang Community); and Zhuzhou City, Hunan Province (Furong Community). Inclusion and exclusion criteria were the same as the pilot survey. A total of 641 questionnaires were distributed, with 590 valid responses (92.04% effective rate). The specific sample distribution (distributed/valid) across the 8 survey sites was: Wunan (70/64), Lejiancheng (65/60), Huangjiahu (63/58), Guihuayuan (80/74), Danan Street (88/82), Beihu (92/85), Haitang (90/80), and Furong (93/87). This study was approved by the Ethics Committee of Hubei University of Chinese Medicine (Approval No.: 2024001).

1.2.2 Research Tools

(1) General Information Questionnaire (developed by the research team): included sociodemographic data such as gender and age, as well as attitudes toward TCM and chronic disease status. (2) Test Version of the TCM Health Behavior Scale: 9 dimensions, 40 items, using a 5-point Likert scale (1-5 representing "never" to "always"), with higher total scores indicating higher levels of TCM health behaviors.

1.2.3 Survey Process and Quality Control Data were collected through both online and offline methods. Researchers were uniformly trained before the

survey to ensure familiarity with questionnaire content and completion guidelines. Online surveys were implemented through the Wenjuanxing platform, with electronic questionnaire links distributed via WeChat and QQ. Quality control measures included setting a minimum completion time (responses $ $180 seconds were excluded) and restricting repeated submissions from the same device. A total of 425 online questionnaires were collected, with 382 valid responses. Offline surveys were conducted face-to-face at community hospitals and health service centers during residents' physical examination or leisure times. Quality control measures included trained investigators assisting those with reading/writing difficulties using standardized oral guidance (avoiding leading questions), on-site completeness checks, and immediate completion of missing items. A total of 216 offline questionnaires were collected, with 208 valid responses. After data collection, two researchers independently entered and cross-checked paper questionnaires. Online and offline data were merged, and invalid responses with patterned answers or contradictions were uniformly excluded.

1.3 Statistical Analysis

SPSS 26.0, Excel 2016, and AMOS 36.0 were used for data analysis. Normally distributed continuous data were expressed as ($\bar{x}\pm s$), while non-normally distributed data were expressed as $M(P_{25}, P_{75})$. Categorical data were described using frequency and percentage. $P<0.05$ was considered statistically significant.

1.3.1 Item Analysis The discrete trend method, critical ratio method, correlation coefficient method, and Cronbach' s α coefficient method were used to screen items. Exclusion criteria included: (1) standard deviation <0.75 [19]; (2) independent samples t-test between high-scoring (top 27%) and low-scoring (bottom 27%) groups not reaching significance ($P<0.01$ or $t<3$) [20]; (3) Pearson correlation coefficient between item and total score <0.3 or $p>0.05$ [21]; and (4) Cronbach' s α coefficient increasing after item deletion [22]. Items meeting three or more of the above criteria were considered for deletion [23-24].

1.3.2 Validity Testing Data were randomly divided into Dataset 1 (n=285 for EFA) and Dataset 2 (n=285 for CFA) using SPSS. (1) EFA: KMO value and Bartlett' s sphericity test were first used to determine suitability for factor analysis. Principal component analysis with varimax rotation was used to extract factors, with extraction criteria of eigenvalue >1, cumulative variance contribution >50%, and each factor containing no fewer than 3 items [25]. Items with factor loading <0.5 or loading differences <0.1 across multiple factors were excluded [26,27]. (2) CFA: Based on EFA results, AMOS was used to test model fit. Ideal fit criteria were: χ^2/df <3.00, RMSEA <0.05, and GFI, CFI, NFI, TLI, IFI >0.90 [28]. (3) Discriminant and convergent validity: Average variance extracted (AVE) was used to evaluate discriminant validity. If the square root of each dimension' s AVE was greater than its correlation coefficients with other dimensions, discriminant validity was considered good [19]. Convergent validity was assessed through factor loadings >0.5, composite reliability (CR), and AVE.

Higher CR values indicate stronger internal associations among observed indicators; higher AVE values indicate greater convergence of categorical variables [28]. (4) Content validity: Expert evaluation was used to calculate scale-level CVI (S-CVI) and item-level CVI (I-CVI). S-CVI>0.90 and I-CVI>0.78 indicated good content validity [29].

1.3.3 Reliability Testing Cronbach' s α coefficient and split-half reliability were used to evaluate internal consistency, with values >0.70 indicating good reliability.

Results

2.1 Expert Consultation and Pilot Survey

2.1.1 Expert Characteristics Nineteen experts from 10 provinces/municipalities including Hubei, Hunan, and Beijing were invited, covering geriatric nursing, TCM nursing, community chronic disease management, general practice, and scale development. Expert ages ranged from 33-61 years; 10 held doctoral degrees and 9 held master' s degrees; 6 had senior professional titles, 11 had associate senior titles, and 2 had intermediate titles; 18 were female and 1 was male.

2.1.2 Pilot Survey Participants The pilot survey included 30 community residents (12 male, 40.0%; 18 female, 60.0%) with mean age $(48.77\$\pm17.84)years.Educationlevels : primaryschoolorbelow(7, 23.3\pm\$188.0)$ seconds. All participants reported smooth and unambiguous item expression; no adjustments were made.

2.1.3 Formal Survey Participants The formal survey included 590 community residents (210 male, 35.6%; 380 female, 64.4%) with mean age (43.6$±$21.0) years. Education levels: primary school or below (71, 12.0%), junior high school (82, 13.9%), high school/vocational school (81, 13.7%), college/university (281, 47.6%), master' s degree or above (75, 12.7%). Two hundred eighty-nine (49.0%) had relatives in medical work; 301 (51.0%) had none. Two hundred sixteen (36.6%) had chronic diseases; 374 (63.4%) had none.

Both rounds of consultation distributed and recovered 19 questionnaires, with 100% expert response rate. Suggestion rates were 95% (18/19) and 74% (14/19) for rounds 1 and 2, respectively. Expert authority coefficients were 0.889 and 0.903. Kendall' s W coefficients were 0.168 and 0.073 (both P<0.05), indicating acceptable expert opinion coordination [26]. After two rounds, the scale items were optimized: Round 1 deleted 3 obscure items, modified 30 poorly expressed items, added 3 items related to exercise health preservation, emotional health preservation, and helping others'health, and split 1 item into 2. Round 2 merged

"utilization of TCM health resources"and "participation in TCM health decision-making"into the "utilization of TCM health resources"dimension, deleted 2 items with insufficient professionalism, and modified wording of 13 items, resulting in the test version of the TCM Health Behavior Scale (9 dimensions, 40 items).

2.3 Item Analysis

The discrete trend method suggested considering deletion of items A4 and F1. The critical ratio method suggested considering deletion of items A2, A3, A4, and F1. Both correlation coefficient and Cronbach' s α coefficient methods suggested considering deletion of items A1, A2, A3, A4, B1, B2, B3, and F1. Among these, items A2, A3, A4, and F1 met three or more exclusion criteria. Since items A2, A3, and F1 contained important TCM-specific health behavior content, their suboptimal statistical indicators might be due to insufficiently concise and accessible expression. After group discussion, it was decided to reserve judgment on retention or optimization pending subsequent reliability and validity results. Item A4 ("I will consult with TCM professionals to jointly decide on TCM health management plans for myself or relatives/friends") was temporarily deleted at this stage.

2.4 Validity Testing

2.4.1 Structural Validity **(1) Exploratory Factor Analysis:** The initial analysis showed KMO=0.888 and significant Bartlett's sphericity test (P<0.001), indicating suitability for factor analysis. Nine factors with eigenvalues >1 were extracted, with cumulative variance contribution of 67.986% and no double-loading items. After deleting items D1, D6, G7, and G8 with factor loadings <0.5, the second analysis yielded KMO=0.882, significant Bartlett' s test (P<0.001), 8 factors with eigenvalues >1, cumulative variance contribution of 69.430%, and no double-loading items. After deleting item G6 with factor loading <0.5, the third analysis finally extracted 8 factors with eigenvalues >1, cumulative contribution of 70.944%. The "self-health" and "helping others' health" items loaded on a single factor, which after group discussion and consideration of theoretical and statistical results was named "self and helping others' health." All remaining items met selection criteria and had clear factor 归属, resulting in the final TCM Health Behavior Scale with 8 dimensions and 34 items .

(2) Confirmatory Factor Analysis: Based on EFA results, the model fit was tested using AMOS. The results showed good fit for the 8-factor model .

2.4.2 Convergent Validity Analysis showed all dimension items had factor loadings of 0.645-0.999 (all >0.5). All dimension CR values were >0.7, and AVE values ranged from 0.478 to 0.682. All three indicators were within acceptable ranges [30-31], indicating good convergent validity .

2.4.3 Discriminant Validity The square root of AVE for all dimensions was greater than correlation coefficients between that dimension and other dimen-

sions, indicating good discriminant validity .

2.4.4 Content Validity The scale-level content validity index was 0.935, and item-level content validity indices ranged from 0.890 to 1.000, indicating good content validity.

2.5 Reliability Analysis

The overall Cronbach' s α coefficient was 0.918, with dimensions ranging from 0.635 to 0.931. The overall split-half reliability was 0.962, with dimensions ranging from 0.708 to 0.964, indicating good reliability .

2.6 Final Scale

The formal TCM Health Behavior Scale contains 8 dimensions and 34 items: utilization of TCM health resources (3 items), meridian-point health preservation (3 items), medicinal diet health preservation (5 items), daily regimen health preservation (5 items), exercise health preservation (4 items), emotional health preservation (3 items), simple health preservation (5 items), and self and helping others' health (6 items) .

Discussion

3.1 Scientific Rigor in Scale Development

This study strictly followed scale development principles and procedures [18]. Based on the TCM health behavior conceptual framework, the initial scale was constructed by integrating findings from multi-stakeholder semi-structured interviews with domestic and international literature review results. During expert consultation, 19 experts from 10 provinces/municipalities across TCM clinical practice, TCM nursing, scale development, and other multidisciplinary fields were invited to evaluate and guide content representativeness, expression accuracy, and clinical applicability. Both rounds achieved 100% response rate, with suggestion rates of 95% and 74%, authority coefficients of 0.889 and 0.903, and statistically significant Kendall' s W coefficients ($P<0.05$), indicating high expert enthusiasm, good authority, and satisfactory opinion concentration. After two rounds of optimization, 30 community residents were recruited for pilot testing to evaluate item readability, comprehension, and feasibility, reducing measurement error. During item analysis, quantitative methods including discrete trend, critical ratio, correlation coefficient, and Cronbach' s α coefficient methods were comprehensively applied for item screening, combined with reliability and validity testing to optimize scale structure. Throughout the entire scale development process, this study adhered to combining quantitative analysis with professional judgment, expert consultation opinions, and research group

discussions to make prudent decisions on item retention, ultimately forming a scale with 8 dimensions and 34 items.

3.2 Good Reliability and Validity

Regarding validity, after three rounds of exploratory factor analysis deleting 5 items, 8 common factors with eigenvalues >1 were extracted, with cumulative variance contribution of 70.944%, indicating the dimensional structure was largely consistent with theoretical constructs. Confirmatory factor analysis results showed all fit indices of the revised model reached ideal or acceptable ranges, indicating good structural validity. Discriminant validity analysis showed the square root of AVE for each dimension was greater than correlation coefficients with other dimension combinations, indicating dimensions were both correlated and distinct. Convergent validity was assessed through factor loadings, CR, and AVE. Results showed all items had factor loadings >0.5 on their corresponding dimensions, indicating high representativeness of each latent variable' s items. All dimension CR values were >0.7, indicating ideal composite reliability. AVE values ranged from 0.478 to 0.682, indicating satisfactory convergence of latent variables. The scale demonstrated good convergent validity. For content validity, item-level CVI ranged from 0.890 to 1.000, and scale-level CVI was 0.935, indicating good content validity. Regarding reliability, the overall Cronbach' s α coefficient was 0.918, with dimensions ranging from 0.635 to 0.931; overall split-half reliability was 0.962, with dimensions ranging from 0.708 to 0.964, indicating good internal consistency for both the overall scale and each dimension. In summary, the TCM Health Behavior Scale has undergone rigorous statistical testing, with reliability and validity indicators meeting measurement standards.

3.3 Innovation and Practicality

Transforming unhealthy lifestyle behaviors is key to effectively preventing or alleviating chronic diseases. With its advantages of being "simple, convenient, effective, and safe" and its "preventive treatment of disease" concept, TCM plays an important role in health promotion across the entire population and life cycle [32]. For health managers, using appropriate assessment tools to scientifically evaluate residents' TCM health behavior levels is an important prerequisite for precisely implementing TCM-specific health interventions. However, assessment tools with both TCM characteristics and standardization are currently scarce. Although the "Chinese Citizens' TCM Health Preservation Literacy Questionnaire (2014)" [11] and "Chinese Citizens' TCM Health Culture Literacy Questionnaire" [12] are mature, widely used tools in TCM health promotion that have played important roles in promoting public TCM health literacy assessment, they still have limitations such as incomplete coverage of TCM-specific health behavior content, complex question types, and time-consuming responses. The TCM Health Behavior Scale developed in this study not only covers classic TCM health preservation content such as meridian-point therapy, medicinal diet, and

exercise, but also innovatively incorporates content related to health resource utilization and health achievement, enabling comprehensive assessment of residents' TCM health behaviors. After multiple rounds of optimization, the items are concise and easy to understand. Online data showed participants' average completion time was 7.82 minutes, and based on feedback from on-site investigators, most participants did not show obvious fatigue or impatience, indicating moderate scale length and good feasibility in practice.

This study developed a TCM Health Behavior Scale with 8 dimensions and 34 items. The items are clearly expressed and, after multiple optimizations, demonstrate good reliability and validity among community residents aged 18-80. Due to various objective limitations, this study' s participants were mainly concentrated in three provinces (Sichuan, Hubei, and Hunan). Since lifestyles and TCM health literacy differ across regions, this may have potential impacts on the scale' s reliability and validity. Future research should expand sample size and geographical coverage through multi-center surveys to further verify the scale' s applicability and stability across different populations and continuously optimize scale items.

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Tables

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