Development and Application of Traditional Chinese Medicine Health Literacy for Women

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Abstract

Background: Health is the basic condition for economic and social development, and in order to improve the quality of life of the people and make the country rich and strong, the first step is to realize a long and healthy life for the nation. To realize a long and healthy life, improving the health literacy of the nation is the way to go.

Objective: To construct the core knowledge entries of Traditional Chinese Medicine (TCM) health literacy for women and apply them to provide a scientific basis for the development of TCM health literacy in women.

Methods: Taking the core knowledge entries of women's health literacy as the research object, combining with the methods of field visits and questionnaires, we investigated the cognitive level of women's health literacy of traditional Chinese medicine and the current situation of medical staff's propaganda and education. We systematically sorted through TCM gynecology ancient books, health literacy-related literature, and policy documents, and constructed a framework for the core knowledge entries of women's TCM health literacy. Through expert consensus meetings and Delphi expert consultations, the core knowledge entries of women's TCM health literacy was finally formulated and underwent preliminary population pilot promotion and feedback.

Results: The core knowledge entries of women's TCM health literacy were ultimately determined, including 3 first-level knowledge entries, 18 second-level knowledge entries, 82 third-level knowledge entries, and 4 fourth-level knowledge entries. After promotion, the results of the examination of women's TCM health literacy showed that women's TCM health literacy was generally high, with 94.18% (97/103) of women possessing TCM health literacy. Among them, women with high TCM health literacy accounted for 63.11% (65/103), and the learning effect was significant. More than 91% (94/103) of the respondents were satisfied with the knowledge entries of women's TCM health literacy, and more than 93% (96/103) of the respondents believed that the knowledge entries were helpful.

Conclusions: Constructing the core knowledge entries and main contents of women's TCM health literacy and promoting and applying them is conducive to improving women's TCM health literacy.

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Abstract:

Objectives: To construct the core knowledge entries of Traditional Chinese Medicine (TCM) health literacy for women and apply them to provide a scientific basis for the development of TCM health literacy in women.

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Conclusions: Constructing the core knowledge entries and main contents of women's TCM health literacy and promoting and applying them is conducive to improving women's TCM health literacy.

Keywords: Women; Health literacy; Traditional Chinese medicine; Knowledge entries; Development.

Introduction

Background

Health is the basic condition for economic and social development, and in order to improve the quality of life of the people and make the country rich and strong, the first step is to realize a long and healthy life for the nation. To realize a long and healthy life, improving the health literacy of the nation is the way to go.

In 1974, health literacy was described as how health information affects education, health care, and mass communication [1]. Much attention was subsequently paid to the topic of personal literacy affecting health. It was not until the early 1990s that the concept of health literacy was introduced into the medical literature, gradually becoming part of mainstream medical literature and practice [2]. In 1992, the National Adult Literacy Survey (NALS), a study of the nation's adults, was conducted in the U.S. The study investigated the ability of adults to use written information in their daily routines, with a focus on reading, writing, and numeracy. The results showed that nearly half of U.S. adults have poor literacy levels in everyday life, while years of education do not reflect actual literacy levels [3-4]. In 2003, the U.S. Department of Education conducted a national survey of the health literacy of U.S. adults, the National Assessment of Adult Literacy (NAAL), using the Health Literacy Component (HLC) assessment tool. HLC assessment tool, the health literacy component focuses on the ability to read, comprehend, and apply health-related information in English and focuses on health tasks, which are categorized into clinical, preventive, and navigational health system categories [5]. NAAL categorized health literacy skills as below basic, basic, intermediate, and proficient. The results showed that almost all health care providers had literacy skills at the proficient level, but only 12% had high levels of health literacy and about 30% of adults had basic or below basic levels. The lack of health literacy skills makes it difficult for many adults to cope in the health care system [6]. Kripalani [7] et al. in their study found that poor medication adherence, poor knowledge and self-management of disease and delayed recovery of disease in patients was due to low health literacy. It can be seen that the level of health literacy is related to the maintenance of health and recovery from disease, and low health literacy is associated with poor health outcomes, while high health literacy is associated with good health outcomes. Advances in healthcare and the push for patient health self-management have led to a growing interest in understanding their health and the ability to make informed decisions [8].

The definition of health literacy is broad and evolving, with Sørensen K [9], Berkman [10] and others listing several different definitions in their literature review, with the common feature of most definitions being a focus on an individual's skills to access, process, and comprehend health information and services necessary to make appropriate health decisions. The World Health Organization (WHO) suggests that health literacy is the cognitive and social skills that determine an individual's motivation and ability to obtain, understand, and use information to promote and maintain health [11]. The American Council for the AMA of Scientific Affairs (ACAS) considers the skills required for health literacy to refer to reading and comprehending health-related materials [12]. The Institute of Medicine (IOM) recognizes that individuals, families, and society form health skills through interaction with the healthcare system and the educational system [13]. The United States National Library of Medicine (NLM) proposed that health literacy is an individual's ability to access, understand, and process basic health information and services in order to make appropriate health decisions [14], and was published by the U.S. government in Healthy People

2010 [15], health literacy is not simply basic literacy skills, but depends on individual and systemic factors, including communication skills of lay people and professionals, lay people's and professionals' knowledge of health topics, cultural, healthcare and public health system requirements, and contextual circumstances [10]. In Freedman's [16] study, health literacy was extended to groups of people and called “public health literacy”, which involves the knowledge, skills, and skills that groups of individuals possess to address public health issues in their communities, and public health literacy complements the health literacy of individuals. It is the extent to which individuals and groups are able to access, process, understand, evaluate and act on the information they need to make public health decisions that benefit their communities. Don Nutbeam [17] further categorized health literacy into three levels: (1) Functional health literacy: basic literacy such as reading, writing, communication and numeracy, combined with access to health information or services [18]. Traditional health education based on dissemination of information about health risk factors and presentation of how to use the health system results in the limitation that only knowledge of health risk factors and health services can be learned to enhance behavioral adherence, rather than generating interactive communication for skill development. (2) Interactive Health Literacy: Reflects the outcome of a health education approach that develops individual skills in a supportive environment and aims to increase independent behavior that benefits the individual, not the group. (3) Critical health literacy: the ability to analyze health information with critical thinking and apply health knowledge to daily life, reflecting the results of cognitive and skill development based on effective and supportive social activities, as well as personal action.

The earliest content proposed in China is health quality. Health quality and health literacy are inseparable and there are differences, the quality of human health depends on the level of health literacy, the improvement of health quality cannot be separated from the cultivation of health literacy [19]. The second proposed content is scientific literacy. Jon Miller, an American scholar, believes that scientific literacy should contain three dimensions: scientific norms and methods, the main terms and perspectives of science, and the impact of science on society [20]. Scientific literacy is defined as the basic acceptable level of knowledge and skills needed to fulfill some role functions in a given society [21]. According to the Organization for Economic Cooperation and Development (OECD), scientific literacy refers to the ability to apply basic knowledge of science to identify scientific questions, use evidence, and make scientific conclusions in order to understand and help nature and to be able to make decisions accordingly [22-23]. Scientific literacy includes health literacy, and drawing on the definition of scientific literacy and surveys of public scientific literacy, popularization of health literacy and surveys and research are carried out in order to provide a basis for relevant decision-making by government departments and to improve public health literacy [22].

The concept of health literacy was first proposed in 2005 [24]. In January 2008, the Health Literacy of Chinese Citizens [25] was released; followed by the Work Program of Chinese Citizens' Health Literacy Promotion Actions, Chinese Citizens' Health Literacy--Interpretation of Basic Knowledge and Skills, and the 66 Articles of Health -- Chinese Citizens' Health Literacy Reader” [26]. 2008 began to carry out surveys on the health literacy of China's residents, and the overall level is low [27-28].

Modern research on Traditional Chinese Medicine (TCM) literacy was proposed in 2007 by Liu Hongyan [29] and others. TCM literacy mainly examines the public's knowledge, attitude, and ability to apply TCM [29-30]. Chen Haiying [31] suggested that the problem of building public TCM literacy lies not only in management and improvement, but also in the need for a medium to disseminate it. The government should play a leading role in

establishing a working system for TCM literacy, setting up an excellent team, carrying out popularization activities, and setting up a base for popularization, as well as playing the role of mass communication media.

In October 2009, the National Norms for Basic Public Health Services were released. Subsequently, the Norms for Health Management Services of TCM added TCM health management service items to the basic public health service programs. In June 2014, Chinese Citizens' Literacy in TCM Nutrition and Health Care was released. In February 2016, the Outline of the Strategic Plan for the Development of TCM was released. A survey of Chinese citizens' literacy in TCM nutrition and health care was begun in 2014 [32], and the overall level was low.

There are fewer policies and studies addressing women's health literacy, and in 2012, Maternal and Child Health Literacy [33] was released, a document that filled the gap in women's health literacy and in 2021, the "China Women's Development Outline (2021-2030)"[34] was published, which proposed health and hygiene services for women's entire life cycle. This aims to enable women to maintain and promote their physical and mental health in every stage of their lives. The Outline also proposes the popularization of health knowledge, improvement of women's health literacy, promotion of a healthy lifestyle for women of all ages that includes balanced nutrition, exercise, and smoking and alcohol control, and the enhancement of women's health and quality of life. Therefore, it is essential to build core knowledge entries on TCM health literacy for women's entire life cycle, in order to improve their health literacy. This should be done in accordance with the policies and documents mentioned above.

Zhu Fang [35] and others conducted a literature analysis that women's reproductive health outcomes are closely linked to health literacy, and improving women's health literacy can improve women's reproductive health and the health of the next generation. Wang Ai [36] et al. concluded that publicity should be increased to improve maternal health knowledge. Zeng Qingqi [37] et al. analyzed through a survey that those with high health literacy had a higher probability of utilizing services such as health education, prenatal checkups, and child health management. Li Li [38] et al. analyzed the level of women's health literacy in China from 2012 to 2020, and although the main health indicators of women in China have significantly improved, and the level of women's health literacy has significantly increased, there are large urban-rural differences, and also the differences in age and education level affect the level of women's health literacy. Lv Yang [39] and others analyzed the health literacy level of women of childbearing age in some regions of China in 2015, and the overall level was 15.56%, and the health literacy of women of childbearing age only stayed at the level of "knowing", and was poor in practical application. Wang Yi [40] and others analyzed that the overall level of maternal and child health literacy among postpartum women was low. At the same time, age, income level, education and culture, and urban-rural differences are important factors affecting the maternal and child health literacy of postpartum women. Zhu Ling [41] et al. studied the effect of health literacy on compliance with pelvic floor muscle exercise in women with stress urinary incontinence, and patients who received health literacy management were able to better acquire knowledge and skills for self-health management, and their compliance with pelvic floor muscle exercise was higher.

Objectives

To construct the core knowledge entries of TCM health literacy for women and apply them to provide a scientific basis for the development of TCM health literacy in women.

Methods

1 Field research and cognitive survey

1.1 Field research

1.1.1 Research methods

This study used expert interview method to develop interview content and conducted field research on three tertiary hospitals: Peking University Third Hospital, Tsinghua University Yuquan Hospital (Tsinghua University Chinese-Western Integrative Hospital), and Haidian Maternity and Child Health Care Hospital. Face-to-face communication was conducted with 5 senior obstetricians and gynecologists, TCM specialists, and 1 senior chief pharmacist.

1.1.2 Research results

Women's health literacy varies, and there are also many existing problems. For example, some women believe that they are in good health and do not pay attention to health care and wellness. Others believe that they are seriously ill and urgently need treatment, leading to inappropriate medical treatment. There are also cases where women do not know how to read drug instructions or how to use medication appropriately for their symptoms.

TCM has been widely used in the field of obstetrics and gynecology, and most doctors will educate female patients on how to adjust their diet, exercise, emotions, daily life, and disease prevention. They will also teach patients simple TCM methods and techniques. This will help improve women's health literacy in TCM.

1.2 Cognitive survey

1.2.1 Research methods

The survey questionnaire mainly included basic information about the survey participants (3 questions) and questions related to women's health literacy in TCM (34 questions), covering knowledge of TCM health concepts, healthy lifestyle and behavior, and health care skills. The content was based on literature research.

The survey questionnaire was distributed online through "Questionnaire Star" to medical staff and patients in comprehensive and specialized hospitals, maternity and child health care hospitals, and community service centers in Beijing and other regions. The first round of questionnaires was conducted in Beijing and received 319 responses, and the second round was conducted outside of Beijing and received 101 responses. After the responses were collected, Excel 2010 and SPSS 26.0 software were used for analysis.

1.2.2 Research Results

The participants' understanding and knowledge of health literacy needs improvement, but they have more knowledge of TCM health care. Most people believe that women's TCM health care is important and are willing to learn about it. They believe that women's TCM health care should be promoted and educated from five aspects: emotional regulation, daily life, dietary adjustments, health exercises, and disease prevention and treatment. They hope to enhance physical fitness, prevent diseases, and prolong life. The six stages of women's health care are adolescence, pregnancy, postpartum, menopause, postmenopausal, and old age.

Women need to pay attention to emotions, warmth, hygiene, diet, and TCM during menstruation. They should avoid irritability, anxiety, fear, and depression. Their diet should be regular and moderate.

The vaginal discharge of women should be observed in terms of color, odor, quantity, and consistency. It is believed that the categorization of vaginal discharge into cold, hot, deficiency, and excess encompasses the majority of

cases. However, only about half of the cases are able to distinguish between cold, hot, deficiency, and excess conditions accurately.

Almost all respondents believe that preconception health care is important, mainly in terms of healthy physical examination, folic acid supplementation, pre-pregnancy counseling, and TCM regulation of body condition.

Almost everyone believes that prenatal education is essential, mainly in terms of emotional, dietary, living environment, and work and rest. Women's concerns during pregnancy mainly include pregnancy-induced nausea and vomiting, insomnia, weight control, waist and leg pain, emotional control, gestational hypertension, and gestational diabetes. Preventing and controlling gestational hypertension and gestational diabetes can be achieved through dietary adjustments, exercise, weight control, daily routines, emotional control, and quitting smoking and drinking. Most people believe that relaxing their nerves during delivery is important, but half of them do not know how to relax. Most people believe that exercise during delivery is beneficial, but half of them do not know how to exercise. Almost all participants believe that postpartum recovery is essential, mainly in terms of recovery of the uterus, breasts, pelvic floor muscles, and weight.

Most people have heard of the Eight Section Brocade (Ba Duan Jin) and occasionally practice it, but many have never practiced it. This is mainly due to a lack of time or resources to learn. Similarly, many have heard of acupressure but only occasionally practice it or have never tried it. This is due to a lack of time, resources, or the perception that acupressure is difficult. Most people have never heard of TCM Stains therapy, and have never tried it. However, many people would be willing to try it during the postpartum period to increase milk production and alleviate breast pain if they had access to learning resources and knew how to perform the technique.

Most people believe that they can choose their own Chinese herbal remedies for simple health maintenance or disease treatment. Safety is the primary concern when selecting herbs, followed by efficacy and cost-effectiveness. Most people can understand the instructions on the packaging of herbal remedies.

A survey shows that most people believe that women's health and wellness are important and have some knowledge and understanding of it. However, they have not delved deeply into the topic or had access to learning resources. Therefore, creating a core knowledge framework for women's TCM health and wellness, increasing learning channels, and strengthening public education will help improve women's TCM health and wellness literacy.

2 Literature Review

2.1 Research Methods

In this study, expert opinions were collected through field surveys, and a questionnaire survey was conducted to understand women's awareness of TCM health literacy. Based on this, relevant literature on TCM health literacy for women was systematically reviewed. Drawing from evaluation frameworks for Chinese citizen health literacy, TCM health literacy, and maternal and child health literacy, a framework for core knowledge entries related to TCM health literacy for women was constructed, focusing on three aspects: basic health knowledge and concepts, healthy lifestyles and behaviors, and basic health skills.

2.2 Research Results

Through the systematic review of TCM gynecology classics, women's physiological and pathological characteristics at different stages, and health maintenance points, core knowledge entries related to TCM health

literacy for women were clarified. The core knowledge entries include nine entries on basic TCM health knowledge and concepts, five entries on healthy lifestyles and behaviors, and four entries on basic health skills. Women's health maintenance and health care were divided into seven stages: menstrual cycle, vaginal discharge, pregnancy, childbirth, postpartum period, menopause, and elderly age, according to their physiological characteristics and growth patterns. Health maintenance and care were organized according to five aspects: emotional regulation, daily life, diet adjustment, physical exercise, and disease prevention and treatment. By summarizing relevant literature and regulatory documents, a framework for core knowledge entries related to TCM health literacy for women was established, providing a theoretical basis for future research.

3 Expert consensus meetings

3.1 Principles for the development and selection of knowledge entries

3.1.1 Scientific Principle

The knowledge entries on women's TCM health literacy in this study were developed based on an objective analysis of the research status, in combination with relevant health literacy policies and the theoretical foundation of "TCM in Gynecology" and the actual health issues faced by women. Scientific evidence was provided for this study through the use of bibliometrics, expert consultations, and statistical methods.

3.1.2 Systematic Principle

The knowledge entries on women's TCM health literacy cover three main aspects: basic knowledge and concepts of women's TCM health, women's healthy lifestyle and behaviors, and basic skills for women's health preservation. They also encompass health and wellness practices for women in different stages, including emotional regulation, daily habits, dietary adjustments, physical exercise, and disease prevention and treatment. The logical relationships between the knowledge entries were considered, ensuring a comprehensive and interconnected approach.

3.1.3 Applicability Principle

The levels of women's TCM health literacy vary among individuals, and factors such as age, education level, income, and cultural background, as well as rural-urban disparities, can influence women's health literacy. Therefore, it is necessary to consider these factors and select knowledge entries that are applicable to all women. The content should be relatable to their daily lives, and the language used should be accessible and easy to understand.

3.2 Research Methods

Based on the previous literature research and expert interviews, a consensus expert meeting was held in Beijing on the "Development and promotion of maternal and child health literacy in TCM". The opinions of experts were widely solicited, and the preliminary core knowledge entries on TCM health literacy for women were modified, added, and deleted, resulting in a draft of the core knowledge entries.

3.3 Research Results

3.3.1 Profile of Experts

A total of 27 experts from 24 hospitals and institutions in Beijing, Hubei, Shandong, and other places participated in the consensus expert meeting, including tertiary comprehensive hospitals, tertiary TCM hospitals, maternal and child health care hospitals, community health service centers, and the Institute of Basic Clinical Medicine of the

China Academy of Chinese Medical Sciences. There were 6 male experts and 21 female experts, all of whom were engaged in obstetrics and gynecology or TCM-related fields, with vice-senior professional titles or above. The experts had a certain degree of authority and representativeness.

3.3.2 Suggestions and Comments on the Modification of Women's TCM Health Literacy Knowledge Entries

The experts unanimously agreed that the core knowledge entries on TCM health literacy for women should first emphasize scientificness, with content and language that are easy to understand, while ensuring safety and feasibility in applications. Among them, 11 experts put forward 15 suggestions for modification. Based on the suggestions and opinions put forward by the experts, 16 knowledge entries were modified, 8 knowledge entries were added, and 6 knowledge entries were deleted after discussion by the research team.

4 Delphi Expert Consultation Approach

4.1 Research methodology

4.1.1 Expert selection method

When selecting experts, the research team followed the principles of representativeness and comprehensiveness, selecting 20 experts with associate professor or higher technical titles, engaged in fields and professions related to TCM, obstetrics and gynecology, or health management, and with certain work experience, who voluntarily accepted and completed the questionnaire survey.

4.1.2 Research methods

Excel 2010 and SPSS 26.0 were used to process data, calculate response rates, means, standard deviations, percentage of maximum scores, coefficient of variation, etc., to describe relevant indicators, and finally evaluate the reliability of the research results.

4.1.3 Basic information of experts

An analysis of the experts' gender, age, education level, title, job type, and years of practice is conducted to determine the reliability and credibility of the research results by understanding the basic information of the experts.

4.1.4 Expert enthusiasm

The higher the questionnaire response rate, the higher the enthusiasm of the experts. If the questionnaire response rate is>80%, it indicates that experts have high enthusiasm [42].

4.1.5 Expert authority

The authority of the experts is represented by the expert authority coefficient (*Cr*), which is determined by two factors: the basis of the expert's judgment on the item (*Ca*) and the expert's familiarity with the item (*Cs*). The higher the expert authority coefficient, the higher the accuracy of the judgment, and $Cr \geq .70$ indicates reliable research results [43].

The calculation formula of the expert authority coefficient (*Cr*) is as follows [44]：

$(Cr)=(Ca+Cs)/2$

The method of assigning values to *Ca*: The expert's judgment basis includes "based on theoretical analysis," "based on work experience," "with reference to domestic and foreign literature," and "intuitive choice," and the degree of influence includes three levels: large, medium, and small. The specific values are shown in Table 1. The basis for dividing the degree of influence of the expert's judgment is as follows: when the proportion of the expert's choice of

a judgment basis in all knowledge entries is > 60%, it indicates that this judgment basis has a "large" influence on the expert; between 30% and 60%, it indicates a "medium" influence; < 30% indicates a "small" influence, as shown in Table 1.

Table1 Criteria for judging the degree of influence [45]

Judging Criteria	Impact Degree		
	Large	Medium	Small
Based on theoretical analysis	.3	.2	.1
Based on work experience	.5	.4	.3
Referencing domestic and foreign literature	.1	.1	.1
Intuition	.1	.1	.1

Method for assigning values to the level of familiarity of expert knowledge entries (*Cs*) [46]: The level of familiarity is divided into five levels, each level being assigned a different score, as shown in Table 2.

Table 2 Values assigned to the level of familiarity

Level of Familiarity	Quantitative Value
Very familiar	1
Quite familiar	.8
Familiar	.6
Not very familiar	.4
Unfamiliar	.2

4.1.6 Concentration of expert opinions

The level of necessity of each indicator is assigned a value based on the 5-point Likert scale, with 5 indicating extremely necessary, 4 indicating quite necessary, 3 indicating general, 2 indicating unnecessary, and 1 indicating completely unnecessary [47]. The score for the "necessity" of each indicator is expressed as the average value and the proportion of the full score, generally indicating a higher concentration of expert opinions when the average value is>3.50 and the full score proportion is>.20.

4.1.7 Coordination of expert opinions

The coordination of expert opinions is generally represented by the coefficient of variation (*Cv*) and Kendall's W coefficient. A smaller *Cv* indicates a higher degree of agreement among experts. When *Cv*>.25, the coordination of expert opinions is considered good [48].

Coefficient of variation (*Cv*) = standard deviation/mean (2)

Kendall's W coefficient: used to test whether experts' ratings of various indicators are consistent. The value of Kendall's W ranges from 0 to 1, with a higher value indicating a higher degree of coordination among experts [49]. However, the result is only reliable when *P*<.05[50].

4.1.8 Criteria for selecting knowledge entries

Knowledge entries can be retained only if they meet all three screening criteria: the average value of the necessity score is>3.50, the full score proportion is>.20, and the coefficient of variation is<.25 [51]. Otherwise, they should be deleted.

4.2 Research Results

The 20 experts selected for the Delphi survey in this study met the requirements in terms of age, education, job

title, job responsibilities, and years of experience in TCM, obstetrics and gynecology, and public health, and they had a certain level of representativeness and authority. The questionnaire response rate was 100% (20/20), indicating a high level of enthusiasm among the experts. According to the familiarity coefficient of the experts (.82) and the judgment coefficient (.97), the coefficient of variation (*Cr*) was .895, indicating a high level of expertise among the experts. Based on the mean value and the proportion of the maximum score, the degree of concentration of opinions was high, and according to the coefficient of variation, the degree of coordination was good.

There were two knowledge entries with an average score>3.50, a coefficient of variation<.25, and a proportion of the maximum score>.20 that did not meet the "necessity" criteria, so the entries " Ba Duan Jin can be practiced during pregnancy" and "Acupressure can be performed during pregnancy" were removed. Finally, 3 first-level knowledge entries, 18 second-level knowledge entries, 82 third-level knowledge entries, and 4 fourth-level knowledge entries were obtained.

In the process of forming the knowledge entries in the previous stage of this study, experts were interviewed, a questionnaire survey was conducted, and a consensus meeting was held to discuss and screen the knowledge entries. In addition, the evaluation results of the first round of Delphi expert consultation were good, and the core knowledge entries of women's TCM health literacy were formed, so a second round of expert consultation was not conducted.

4.3 Expert Consultation Results

4.3.1 Reliability Evaluation of Delphi Method

A total of 20 experts were consulted in this survey, including 5 males and 15 females, with ages ranging from 38 to 67 years old, with an average of 50.2 ± 1.902 years old and a median of 53.0 years old. Three experts had a bachelor's degree, seven had a master's degree, and ten had a doctoral degree or above. Twelve experts held the associate senior title, and nine held the senior title. All 20 experts came from major hospitals in Beijing, including Peking University Third Hospital, Xiyuan Hospital, Beijing Children's Hospital, Xuanwu Hospital, Aviation General Hospital, 301 Hospital, Beijing Friendship Hospital, and Fengtai Community Health Service Center. The experts' work areas were mainly in TCM, with some in Obstetrics and Gynecology, Chinese herbal medicine, and healthcare management. In terms of work experience, 13 experts had over 20 years of experience, one had 16-20 years, and six had 11-15 years. It can be seen that the male-to-female ratio of experts was balanced, their education level was at least a bachelor's degree, their professional titles were at least an associate senior title, their work nature was related to TCM, Obstetrics and Gynecology, Chinese herbal medicine, or healthcare management, and their work experience was at least 10 years, all meeting the inclusion criteria for experts. Therefore, the consultation results are representative, reliable, and authoritative.

4.3.2 Delphi Expert Consultation Results

4.3.2.1 Expert Participation

A total of 20 experts were selected for the survey, and all of them agreed to participate in the consultation, resulting in a questionnaire response rate of 100% (20/20).

4.3.2.2 Expert Authority

The expert authority coefficient can be calculated based on the experts' familiarity with knowledge entries and judgment criteria. The coefficient for the experts' judgment of knowledge entries (*Ca*) was .97, and the coefficient

for their familiarity with the entries (*Cs*) was .82, resulting in an expert authority coefficient (*Cr*) of .895, with *Cr*≥.70. Therefore, the selected experts in this study had a high level of authority.

4.3.2.3 Concentration of Expert Opinions

The average scores of the experts' ratings of the "necessity" of each level of knowledge item were between 3.10 and 4.95, with only two entries below 3.50 and the rest above. The full mark ratios were between .05 and .95, with only two entries below .20 and the rest above. This indicates that the concentration of expert opinions on the "necessity" of each level of knowledge item was high.

4.3.2.4 Coordination of Expert Opinions

The coordination coefficient of expert opinions was .223 (*X2*=481.380, *P*<.001), and the coefficient of variation (*Cv*) for the experts' ratings of the "necessity" of each level of knowledge item was between .044 and .337, with only two entries having a *Cv* above .25, indicating a good level of coordination among expert opinions.

4.3.2.5 Filtering Results of Knowledge entries

Based on the filtering criteria, two knowledge entries were deleted, which did not meet the following three indicators: average necessary value greater than 3.50, full mark rate greater than.20, and coefficient of variation less than .25. These two entries were "Eight-section Brocade Exercise during Pregnancy" (average score=3.20, coefficient of variation=.272, full mark rate=.05) and "Acupressure during Pregnancy" (average score=3.10, coefficient of variation=.337, full mark rate=.10).

5 Application Research

5.1 Research Method

In order to gain a better understanding of the satisfaction level among women regarding the knowledge entries on women's TCM health literacy and the subsequent application of TCM health literacy, a feedback survey was conducted as part of this study. Electronic versions of knowledge entries were distributed online to medical personnel and patients in tertiary hospitals and maternal and child health care hospitals in Beijing. After learning, a survey questionnaire was distributed online through "Questionnaire Star", and 103 questionnaires were collected for data analysis using SPSS 26.0 software.

5.2 Research Results

5.2.1 Basic Information of the Survey Participants

A total of 103 female respondents participated in this study, with a concentration of ages between 21 and 40 (85.44%,88/103). Urban household registration (79.61%,82/103) was more common than rural household registration (20.39%,21/103). Most participants had a bachelor's degree (61.17%,63/103), followed by postgraduates or above (24.27%,25/103), junior college (12.62%,13/103), and high school or below (1.94%,2/103). The occupations covered in the survey included state-owned enterprises and public institutions (25.24%,26/103), medical institutions (23.30%,24/103), IT (8.74%,9/103), and others, including unemployed (8.74%,9/103). The survey covered a wide range of population, and the results have certain reference value.

5.2.2 Surveyed Women's TCM Health Literacy After Learning

According to the core knowledge entries of women's TCM health literacy, 18 related questions were set. Each correct answer was assigned 5 points, and other incorrect options were assigned 0 points. The full score was 90

points. If the score is 80% or above, it is considered to have a higher level of women's TCM health literacy; if the score is between 60% and 80%, it is considered to have a basic level of women's TCM health literacy; if the score is below 60%, it is considered to have a lower level of women's TCM health literacy.

In this study, the average score of women's TCM health literacy among the surveyed was 75.92 points, with a standard deviation of 15.73 points. There were 65 people who scored 72 points or above, accounting for 63.11% (65/103) of the total population, indicating that this group of people had a higher level of TCM health literacy after learning the core knowledge entries. There were 32 people who scored between 54 and 72 points, accounting for 31.07% (32/103) of the total population, indicating that this group of people had a basic level of TCM health literacy after learning. There were 6 people who scored 54 points or below, accounting for 5.82% (6/103) of the total population, indicating that this group of people had a lower level of TCM health literacy.

Overall, after learning the core knowledge entries of women's TCM health literacy, 94.18% (97/103) of women had TCM health literacy, indicating that the learning effect was significant. After learning, age, education level, urban-rural difference, and employment status were not related to TCM health literacy for women P .05, indicating that as long as women systematically and seriously study the core knowledge entries of TCM health literacy for women, women of all ages and levels can improve their TCM health literacy.

More than 91% of the respondents were satisfied with the entries on the core knowledge of women's health literacy in Chinese medicine, and more than 93% of the respondents found the entries on the core knowledge of women's health literacy in Chinese medicine helpful, with the most helpful content being women's healthy lifestyles and behaviors, followed by women's basic knowledge and concepts of Chinese medicine health, and women's basic skills of health care.

Results

After expert discussions, modifications, additions, and deletions have been made to the core knowledge entries of women's TCM health literacy. The revised knowledge entries of women's TCM health literacy now includes 3 first-level knowledge entries: basic knowledge and concepts of women's TCM health, women's health lifestyles and behaviors, and basic skills for women's health preservation and maintenance. Additionally, there are 18 second-level knowledge entries, which cover the definition of women's TCM health literacy, the six stages of women's health preservation and maintenance, the physiological characteristics and key points of health preservation during the four stages of the menstrual cycle, proactive engagement in preconception healthcare, and the adjustment of physical condition. Furthermore, there are 84 third-level knowledge entries and 4 fourth-level knowledge entries.

First-level Knowledge Entry

1 Basic Knowledge and Concepts of TCM for Women's Health

Second-level Knowledge Entry

1.1 Definition of Women's Health Literacy in TCM

Third-level Knowledge Entry

1.1.1 Emotion Regulation

1.1.2 Daily Living

1.1.3 Dietary Adjustment

1.1.4 Exercise and Health Preservation

1.1.5 Disease Prevention and Treatment

Second-level Knowledge Entry

1.2 Six Stages of Women's Health Preservation

Third-level Knowledge Entry

1.2.1 Adolescence

1.2.2 Pregnancy

1.2.3 Postpartum Period

1.2.4 Menopause

1.2.5 Perimenopause

1.2.6 Elderly Period

Second-level Knowledge Entry

1.3 Physiological Characteristics and Health Maintenance Emphasis in the Four Stages of the Menstrual Cycle

Third-level Knowledge Entry

1.3.1 Menstruation Phase: During the menstrual phase, there is a predominance of Yin over Yang. The focus should be on promoting blood circulation, resolving stasis, and regulating the menstrual flow.

1.3.2 Postmenstrual Phase: This phase is characterized by an extended Yin period. It is important to nourish the kidneys and replenish essence and blood to restore the Yin state and promote its recovery.

1.3.3 Intermenstrual Phase: The intermenstrual phase involves a transition from Yin to Yang and a transformation of Yin and Yang. It is necessary to tonify the kidneys, activate blood circulation, and emphasize the promotion of new growth. For women preparing for pregnancy, this is a suitable time for intimate relations while maintaining a positive emotional state and engaging in appropriate physical exercise.

1.3.4 Premenstrual Phase: The premenstrual phase is associated with a prolonged Yang period. The focus should be on nourishing the kidney Yang while also supplementing Yin.

Second-level Knowledge Entry

1.4 Proactively Embrace Preconception Health Care and Optimize Physical Well-being:

Third-level Knowledge Entry

1.4.1 Preconception health care reflects the concept of "preventing illness before it occurs" in TCM.

1.4.2 In the six months prior to planned conception, it is important to quit smoking and alcohol consumption.

1.4.3 Maintain a regular daily routine, avoid staying up late, and ensure sufficient sleep before midnight.

1.4.4 Adopt a well-balanced diet with a proper combination of cereals, fruits, animal products, and vegetables.

1.4.5 Adjust body weight and engage in at least 30 minutes of moderate-intensity exercise daily.

Second-level Knowledge Entry

1.5 Prenatal education should be given significant attention during the pregnancy period.

Third-level Knowledge Entry

1.5.1 "The Essential Prescriptions Worth a Thousand Pieces of Gold for Emergencies" advocates the significance of "Nurturing the Fetus - Part III" and underscores the importance of prenatal education during the first three months of pregnancy.

1.5.2 Emotionally, it is crucial to maintain a positive mindset, ensure physical comfort, and avoid negative emotions.

1.5.3 Regarding dietary habits, during the early stages of pregnancy, it is sufficient to ensure basic energy supply with small, frequent meals. Daily intake should include no less than 130g of grains.

1.5.4 During the mid to late stages of pregnancy, a well-balanced and nutritious diet is essential, while excessive salt consumption should be avoided.

1.5.5 In daily living, it is essential to create a serene environment with suitable temperature conditions to promote restful sleep.

1.5.6 Engaging in appropriate physical activities, coupled with adequate rest, is recommended, with a minimum of 30 minutes of daily physical exercise.

1.5.7 Abstinence is encouraged, and sexual intercourse should be avoided.

Second-level Knowledge Entry

1.6 During the delivery period, it is important to alleviate stress and anxiety, take timely rest, and engage in appropriate physical activity.

Third-level Knowledge Entry

1.6.1 Emphasize maintaining a tranquil state of mind, practice proper breathing techniques, and listen to soothing music.

1.6.2 Stay hydrated by drinking water at appropriate times and consume high-calorie, easily digestible, and light foods.

1.6.3 Prioritize rest and allow the body to recuperate.

1.6.4 Engage in suitable physical activities, such as using exercise balls, stools, or treadmills under guided instruction.

1.6.5 Timely bowel movements are important.

Second-level Knowledge Entry

1.7 During the postpartum period, it is important to get sufficient rest, regain physical strength, maintain a positive mood, and ensure adequate breast milk supply. Engaging in appropriate exercise and pelvic floor muscle training is recommended.

Third-level Knowledge Entry

1.7.1 Maintain emotional well-being and avoid anger or excessive worry.

1.7.2 Prioritize ample rest and quality sleep, avoiding early excessive physical exertion or exhaustion.

1.7.3 Focus on a nutritious and balanced diet, avoiding spicy, cold, or raw foods that may cause stimulation.

1.7.4 Engage in moderate exercise to restore body weight and participate in Kegel exercises and pelvic floor muscle training.

Second-level Knowledge Entry

1.8 During the menopausal period, it is important to balance work and rest, maintain a regular lifestyle, and regulate emotions.

Third-level Knowledge Entry

1.8.1 Maintain a positive mood and avoid anxiety, sadness, or anger.

1.8.2 Adopt a diet low in calories, fat, salt, and sugar. Ensure daily intake of grains and avoid consuming heavy meals, strong tea, or coffee before bedtime.

1.8.3 Adapt to suitable temperature conditions in daily living, engage in moderate physical activity, and avoid excessive sedentary behavior.

1.8.4 Ensure 7-8 hours of sleep per night and take a 15–20-minute nap during the day.

1.8.5 Sexual activity should be moderate to preserve mental energy.

Second-level Knowledge Entry

1.9 During the menopausal and elderly stages, it is important to practice seasonal health maintenance, maintain a regulated diet, regulate emotions, establish a proper daily routine, and engage in moderate exercise.

Third-level Knowledge Entry

1.9.1 Avoid feelings of tension, anxiety, and fear, and maintain an optimistic attitude.

1.9.2 In terms of diet, choose nourishing foods during late autumn and winter, and minimize the consumption of raw and cold foods during hot weather.

1.9.3 Practice moderation in diet, avoiding overeating or excessive restriction.

1.9.4 Emphasize a diverse diet with a balance of flavors, easy digestion, and rich nutritional content.

1.9.5 Ensure good sleep quality without excessive indulgence in sleep.

1.9.6 Maintain a regular sleep schedule, going to bed and waking up early, and avoid excessive fatigue.

1.9.7 Engage in low-impact exercise with slow and rhythmic movements.

First-level Knowledge Entry

2 Women's healthy lifestyles and behaviors

Second-level Knowledge Entry

2.1 During the menstrual period, it is important to avoid irritability, anxiety, fear, and melancholy in terms of emotions.

Third-level Knowledge Entry

2.1.1 Practice self-regulation.

2.1.2 Practice moderate emotional release.

2.1.3 Exercise reasonable compliance.

2.1.4 Avoid situations that cause fear or panic.

Second-level Knowledge Entry

2.2 During the menstrual period, it is important to maintain a regular and controlled diet.

Third-level Knowledge Entry

2.2.1 Follow dietary regulations. Ensure three balanced meals a day at regular intervals, avoiding overeating. Maintain a diverse range of food types and a well-balanced diet. During the menstrual period, it is advisable to consume nutritious and easily digestible food with a light flavor.

2.2.2 Be cautious with flavors. Avoid excessive preference for certain flavors and refrain from consuming spicy, stimulating, and cold foods.

Second-level Knowledge Entry

2.3 When experiencing vaginal discharge, it is important to differentiate between cold and heat, deficiency and

excess conditions.

Third-level Knowledge Entry

2.3.1 If the discharge is abundant, white or pale yellow in color, and has a clear and thin consistency similar to nasal mucus, it is often indicative of spleen yang deficiency.

2.3.2 If the discharge is white in color, clear and thin like water, and accompanied by a sensation of coldness, it may be attributed to kidney yang deficiency.

2.3.3 If the discharge is abundant, white in color, and has a thick and sticky consistency, it may indicate the presence of dampness and phlegm.

2.3.4 If the discharge is abundant, yellow in color, sticky and foul-smelling, or presents as foamy or white like curdled tofu, it may be associated with dampness-heat accumulation.

2.3.5 If the discharge is abundant, yellow-green in color resembling pus, or cloudy and resembles rice water, with a thick consistency and foul odor, it may indicate a severe manifestation of dampness-toxin syndrome.

2.3.6 If the discharge is not excessive, yellow or pale with a combination of redness, with a thick consistency or foul odor, it may be indicative of yin deficiency with dampness.

Second -level Knowledge Entry

2.4 During pregnancy, it is important to monitor blood glucose changes, control risk factors, and enhance self-management.

Third-level Knowledge Entry

2.4.1 Regularly monitor blood glucose levels.

2.4.2 Maintain emotional stability and well-being.

2.4.3 Limit the intake of grains and fats, avoid excessive consumption of sugary foods, and maintain a diet consisting of moderate amounts of rice, wheat, miscellaneous grains, along with vegetables, legumes, lean meat, and eggs. Eat at regular intervals, in controlled portions, and opt for frequent smaller meals.

2.4.4 Engage in appropriate physical activity, exercise regularly, and maintain a healthy weight.

2.4.5 Quit smoking and avoid alcohol consumption.

Second-level Knowledge Entry

2.5 During pregnancy, it is important to monitor blood pressure changes, control risk factors, and enhance self-management.

Third-level Knowledge Entry

2.5.1 Regularly monitor blood pressure levels.

2.5.2 Reduce mental stress and maintain psychological balance.

2.5.3 Ensure the intake of grains and whole wheat, reduce the consumption of refined flour and polished rice, increase the consumption of fruits and vegetables, reduce fat intake, maintain a low-salt and balanced diet.

2.5.4 Engage in moderate exercise and control weight.

2.5.5 Quit smoking and avoid alcohol consumption.

First-level Knowledge Entry

3 Basic Skills for Women's Health and Wellness

Second-level Knowledge Entry

3.1 The TCM health practice Ba Duan Jin (Eight Brocades) can regulate the organs, harmonize Qi and blood, open the meridians, promote health and mental acuity, and prevent diseases and promote longevity.

Third-level Knowledge Entry

3.1.1 It can be practiced during the menstrual period.

3.1.2 It can be practiced during the preconception period.

3.1.3 It can be practiced during pregnancy.

3.1.4 It can be practiced during the menopausal period.

3.1.5 It can be practiced during the postmenopausal period.

3.1.6 It can be practiced during the elderly years.

Second-level Knowledge Entry

3.2 TCM acupressure can enhance the body's immune function, open the meridians, balance Yin and Yang, and promote longevity.

Third-level Knowledge Entry

3.2.1 It can be performed during the menstrual period.

3.2.2 It can be performed during the preconception period.

3.2.3 It can be performed during pregnancy.

3.2.4 It can be performed during the menopausal period.

3.2.5 It can be performed during the postmenopausal period.

3.2.6 It can be performed during the elderly years.

Second-level Knowledge Entry

3.3 TCM fumigation therapy can benefit postpartum insufficient lactation.

Third-level Knowledge Entry

3.3.1 It can be performed during the postpartum period.

Second-level Knowledge Entry

3.4 Women should use TCM judiciously.

Third-level Knowledge Entry

3.4.1 Principles of medication for women in different stages:

Fourth-level Knowledge Entry

3.4.1.1 During the menstrual period, caution should be exercised when using TCM herbs that promote blood circulation, resolve blood stasis, and disperse blood stagnation.

3.4.1.2 During pregnancy, herbs that promote blood circulation, resolve blood stasis, induce bowel movements, regulate Qi, expel parasites, and open the orifices should be strictly avoided.

3.4.1.3 During the delivery period, it is important to differentiate between deficiency and excess patterns. TCM herbal tea for facilitating childbirth may be used. For excess patterns, herbs that soothe the liver and regulate Qi can be selected, while for deficiency patterns, herbs that tonify Qi and nourish blood are appropriate.

3.4.1.4 During the menopausal and elderly stages, the number of medications should be minimized, dosages should be low rather than high, the nature of the herbs should be warm rather than drastic, the duration of medication should be short rather than long, and the treatment should proceed gradually rather than rapidly.

Conclusions

The previous literature review shows that the level of health literacy in China is generally low, especially in the female group, and with the popularization of health knowledge, the health literacy of Chinese residents is also gradually increasing every year, but at a slow pace. At the same time, health literacy related documents are only "Chinese Citizens' Health Literacy - Basic Knowledge and Skills (Trial)", "Chinese Citizens' Health Literacy through Traditional Chinese Medicine", and "Maternal and Child Health Literacy", the contents of which are not perfect. In order to respond to the call of the state, give full play to the role of traditional Chinese medicine and improve the health literacy of women's groups, we propose to construct a framework of knowledge entries on women's health literacy in traditional Chinese medicine and promote its application.

This study constructed the knowledge items of women's health literacy in traditional Chinese medicine by combing health literacy related literature and relevant policies at home and abroad. Through questionnaires and field surveys, we learned about women's knowledge of health literacy in traditional Chinese medicine, the current status of the application of traditional Chinese medicine in the field of gynecology and obstetrics, and the current status of publicity and education on women's health literacy; we evaluated and deleted women's health literacy in traditional Chinese medicine through the consensus of the conference and the consultation with the experts. Finally, a consensus was reached to form the knowledge entries of women's health literacy in TCM, including 3 first-level knowledge entries on women's healthy lifestyles and behaviors, women's basic knowledge and concepts of TCM health, and women's basic skills of health care; 18 second-level knowledge entries, 82 third-level knowledge entries, and 4 fourth-level knowledge entries; and finally, the knowledge entries were popularized and applied, with more than 91% of the respondents satisfied with the knowledge entries on women's health literacy in TCM, and more than 93% were satisfied with the knowledge entries on women's health literacy. knowledge entries were satisfied, and more than 93% of the respondents found the knowledge entries on women's TCM health literacy helpful. The results of the examination of the respondents' health literacy in Chinese medicine showed that 94.18% of the women had health literacy in Chinese medicine, and 63.11% of them had a higher level of health literacy in TCM, so the effect of the study was remarkable.

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Data Availability

The data used in this research will be made available by the authors upon reasonable request.

Conflicts of Interest

None declared.

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Abbreviations
ACAS：the AMA of Scientific Affairs
HLC：the Health Literacy Component
IOM：the Institute of Medicine
NAAL：the National Assessment of Adult Literacy
NALS：the National Adult Literacy Survey
NLM：The United States National Library of Medicine
OECD：Organization for Economic Cooperation and Development
TCM：Traditional Chinese Medicine
WHO：World Health Organization