

Health Characteristics and Health Needs of Community Perimenopausal Women: A Post-print Study

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Abstract

Background With the continuous development of society and ongoing technological innovation, the average life expectancy of humans has gradually extended, leading to an increasingly large population of perimenopausal women. This trend poses severe challenges for communities in conducting perimenopausal health management.

Objective To understand the health characteristics and health needs of perimenopausal women in the community, explore the relationship between the two, and provide evidence-based support for community health service institutions to develop and improve perimenopausal health management.

Methods Perimenopausal women who visited or accompanied others to Huamu Community Health Service Center and its subordinate stations in Pudong New Area, Shanghai, from February to March 2023 were selected as study subjects (n=260). A questionnaire survey was used to collect data on the subjects' health characteristics (including physiological stage, social characteristics, disease status, lifestyle, quality of life), their understanding of menopause and attitudes toward treatment, as well as their needs for menopause-related knowledge and prevention and health care for menopausal diseases.

Results 50.0% (130/260) of perimenopausal women had current chronic disease histories, 51.9% (135/260) had past chronic disease histories, 73.8% (192/260) had fair/poor sleep quality, and 33.5% (87/260) almost never exercised. 58.5% (152/260) of perimenopausal women had no understanding/had only heard of menopause, 41.9% (109/260) held negative attitudes toward menopause treatment, 45.0% (117/260) moderately/strongly needed menopause-related knowledge, and 66.6% (173/260) needed/strongly needed prevention and health care for menopausal diseases. Ordered multinomial Logistic regression analysis

showed that education level, number of menopausal symptoms occurring in the past 3 months, and attitudes toward menopause treatment were influencing factors for perimenopausal women's needs for menopause-related knowledge ($P < 0.05$), while education level and attitudes toward menopause treatment were influencing factors for their needs for prevention and health care for menopausal diseases ($P < 0.05$).

Conclusion This study reveals the impact of perimenopausal women's health characteristics (such as education level and symptom severity) on health needs. Community health service institutions should optimize health management programs for perimenopausal women based on precise data, and provide comprehensive, personalized health management services for perimenopausal women in the community.

Full Text

Health Characteristics and Health Needs of Perimenopausal Women in the Community

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Abstract

Background: With continuous societal development and increasing life expectancy, the population of perimenopausal women has grown substantially, posing significant challenges for community-based perimenopausal health management.

Objective: To investigate the health characteristics and health needs of perimenopausal women in community settings, explore their interrelationships, and provide evidence for developing and improving perimenopausal health management services in community health institutions.

Methods: We selected 260 perimenopausal women who visited or accompanied others to Huamu Community Health Service Centre and its affiliated stations in Pudong New District, Shanghai, between February and March 2023. Questionnaires were administered to collect data on participants' health characteristics (including physiological stage, social characteristics, disease status, lifestyle, and quality of life), knowledge about menopause, attitudes toward treatment, and needs for menopause-related knowledge and preventive health-care for menopausal diseases.

Results: Half of the participants (130/260, 50.0%) had a current chronic disease, 51.9% (135/260) had a history of chronic disease, 73.8% (192/260) reported fair or poor sleep quality, and 33.5% (87/260) engaged in little to no exercise. Regarding knowledge and attitudes, 58.5% (152/260) were completely unaware or had only heard of menopause, 41.9% (109/260) held negative attitudes toward menopause treatment, 45.0% (117/260) expressed need for menopause-related knowledge, and 66.6% (173/260) needed preventive healthcare for menopausal diseases. Ordered multicategorical logistic regression analysis revealed that educational attainment, number of menopausal symptoms in the past three months, and attitudes toward menopause treatment significantly influenced the need for menopause-related knowledge ($P < 0.05$). Educational attainment and attitudes toward treatment also significantly influenced the need for preventive healthcare ($P < 0.05$).

Conclusion: This study demonstrates that health characteristics such as educational attainment and symptom severity affect the health needs of perimenopausal women. Community health service institutions should optimize health management programs based on accurate data and deliver comprehensive, personalized health management services for perimenopausal women in the community.

Keywords: Perimenopause; Health characteristics; Health needs; Community health services; Health management

Introduction

Perimenopause refers to the period around menopause, including the menopausal transition and the time after menopause [1]. Based on an average menopausal age of 50 years [2], there were 247 million women aged 50 years and older in China in 2020, representing more than one-third of the total female population [3]. Moreover, as life expectancy continues to increase, Chinese women's life expectancy has exceeded 80 years [4], meaning women will spend one-third of their lives post-menopause. Perimenopausal women experience various troubling symptoms, including menstrual irregularities, vasomotor symptoms, depression, metabolic abnormalities, and urogenital symptoms [1]. The physiological and pathological changes during this stage can negatively impact quality of life for middle-aged women, and if not adequately addressed, may lead to serious physical and mental diseases extending into later life [5]. Therefore, health management for perimenopausal women to maintain their physical and mental well-being is crucial for improving women's quality of life in old age and promoting healthy aging.

Communities offer advantageous settings for health management and clinical research, with multiple benefits in terms of time, space, population, information, and policy [6]. However, when implementing perimenopausal health management in communities, it is essential first to understand the actual situation of the target population—their health characteristics and health needs. Based

on these actual distribution characteristics, precise health management plans can be developed and corresponding health interventions implemented at both group and individual levels. Accordingly, this study, from the perspective of community health service institutions conducting perimenopausal health management, takes Huamu Community in Shanghai as an example to explore the current status of health characteristics and health needs among community perimenopausal women and analyze their relationships, aiming to develop matching health management strategies and provide practical, evidence-based references for peers in the field.

Methods

1.1 Study Subjects

We selected perimenopausal women ($n=260$) who visited or accompanied others to Huamu Community Health Service Centre and its affiliated stations in Pudong New District, Shanghai, between February and March 2023 as study subjects. Inclusion criteria were: (1) provided informed consent and voluntarily participated in the survey; (2) aged 40-65 years, the target age range for perimenopausal health management [7]; and (3) permanent residents of Huamu Community (residing in the community for ≥ 6 months). Exclusion criteria were: (1) individuals with cognitive or communication impairments; (2) patients with gynecological malignancies; and (3) patients with a prevalence P of 80.0% [8], $\alpha=0.05$, and $\delta=\pm 5\%$, resulting in a required sample size of 246. The actual sample size of this study met the estimation criteria.

1.2 Research Methods

This study used a questionnaire survey to collect detailed information from perimenopausal women. The questionnaire was developed based on the Chinese version of the Menopause-Specific Quality of Life Questionnaire (MENQOL) [9] with innovative extensions to form the MENQOL+ questionnaire. The MENQOL scale comprises four dimensions—vasomotor symptoms, physical function, psychosocial function, and sexual function—with 29 items scored from 0 (“not at all affected”) to 6 (“extremely affected”), and has been widely validated and applied [10].

The MENQOL+ questionnaire includes two parts: (1) Health characteristics of perimenopausal women, which adds dimensions for physiological stage (including age, menstrual or perimenopausal status), social characteristics (including educational attainment, marital status, occupation, monthly household disposable income), disease status (including current chronic disease history, past chronic disease history, past gynecological disease history, number of menopausal symptoms in the past three months, and menopause medication use), and lifestyle (including sleep quality, physical exercise, and communication with partners) to the MENQOL scale, enabling more precise capture

of respondents' health characteristics. (2) Knowledge, attitudes, and needs of perimenopausal women, including their knowledge about menopause, attitudes toward menopause treatment, and health needs. Health needs encompass requirements for menopause-related knowledge, current sources of menopause information, preferred sources for obtaining menopause knowledge, needs for preventive healthcare for menopausal diseases, and preferred healthcare providers for menopause care.

1.3 Quality Control Methods

First, surveyors were research team members with specialized training and survey experience. All surveyors received standardized training from the principal investigator before the study began, covering questionnaire background and purpose, filling instructions, data verification, and submission methods to ensure consistency and accuracy in data collection. Second, surveyors provided on-site guidance for perimenopausal women to complete informed consent forms and questionnaires. To alleviate participants' privacy concerns, all surveys were conducted anonymously. Third, to minimize recall bias, structured questionnaires were used with detailed interview guidance to help participants recall and report information accurately. When necessary, participants' medical records and other relevant documents were referenced to ensure information accuracy. Fourth, after questionnaire collection, EpiData 3.0 software was used to establish the database, and a double-entry error-correction method was employed for data entry to ensure data accuracy.

1.4 Statistical Methods

Data analysis was performed using SPSS 25.0 and SAS 9.4 statistical software. Categorical data were expressed as frequencies and percentages, with inter-group comparisons using χ^2 tests. Non-normally distributed continuous data were expressed as median (P25, P75), with inter-group comparisons using Kruskal-Wallis H tests. Ordered multicategorical logistic regression was used to analyze the influence of perimenopausal women's health characteristics on their needs for menopause-related knowledge and preventive healthcare for menopausal diseases. $P < 0.05$ was considered statistically significant.

Results

2.1 Health Characteristics of Perimenopausal Women

Regarding physiological stage, 45.0% (117/260) of perimenopausal women were aged 40-45 years, and 45.8% (119/260) had normal menstrual cycles. In terms of social characteristics, 75.4% (196/260) had college or undergraduate education and above, 91.5% (238/260) were married, 28.8% (75/260) were retired or unemployed, and 40.0% (104/260) had a monthly household disposable income of 5,000-9,999 RMB. For disease status, 50.0% (130/260) had a current chronic disease, 51.9% (135/260) had a history of chronic disease, 92.7% (241/260) had a

history of gynecological diseases, 100.0% (260/260) had experienced menopausal symptoms in the past three months, and only 17.3% (45/260) were currently or had previously taken menopause medications. Regarding lifestyle, 73.8% (192/260) reported fair or poor sleep quality, 33.5% (87/260) engaged in little to no exercise, only 10.8% (28/260) exercised daily, and 60.0% (156/260) communicated smoothly with their partners. For quality of life, the median MEN-QOL score was 52.0 (27.3, 81.0). The median scores for vasomotor symptoms, physical function, psychosocial function, and sexual function dimensions were 3.0 (0, 8.0), 30.0 (16.0, 47.8), 12.0 (5.0, 21.0), and 4.0 (2.0, 9.0), respectively.

2.2 Knowledge, Attitudes, and Needs of Perimenopausal Women

A majority of participants [58.5% (152/260)] were completely unaware or had only heard of menopause, while 41.9% (109/260) held negative attitudes toward menopause treatment. Nearly half [45.0% (117/260)] expressed that they needed or greatly needed menopause-related knowledge. The most commonly used sources for obtaining menopause information were the internet [155 (59.6%)], WeChat [94 (36.2%)], and newspapers/magazines [79 (30.4%)]. However, the preferred sources for obtaining menopause knowledge were health lectures [140 (53.9%)], combined online and offline campaigns by community committees and community doctors [133 (51.2%)], and outpatient clinic visits [118 (45.4%)]. For preventive healthcare needs, 66.6% (173/260) needed or greatly needed preventive care for menopausal diseases, with menopause specialists [116 (44.6%)] and gynecological health doctors [75 (28.8%)] being the preferred healthcare providers .

2.3 Comparison of Health Needs Among Perimenopausal Women with Different Characteristics

Statistically significant differences ($P < 0.05$) were found in the level of need for menopause-related knowledge among perimenopausal women of different ages, educational attainment, occupations, monthly household disposable income, number of menopausal symptoms in the past three months, physical exercise habits, and attitudes toward menopause treatment. Similarly, significant differences ($P < 0.05$) were observed in the level of need for preventive healthcare for menopausal diseases among women with different educational attainment, marital status, occupations, current chronic disease history, past chronic disease history, physical exercise habits, and attitudes toward menopause treatment .

2.4 Analysis of Influencing Factors on Health Needs

- (1) Using perimenopausal women's need for menopause-related knowledge as the dependent variable (assigned values: not needed=1, neutral=2, needed=3), and age, educational attainment, occupation, monthly household disposable income, number of menopausal symptoms in the past three months, physical exercise habits, and attitudes toward menopause treatment as independent variables, ordered multicategorical logistic regression

analysis was performed. The results showed that educational attainment, number of menopausal symptoms in the past three months, and attitudes toward menopause treatment were significant influencing factors on the need for menopause-related knowledge ($P < 0.05$).

- (2) Using perimenopausal women's need for preventive healthcare for menopausal diseases as the dependent variable (assigned values: not needed=1, neutral=2, needed=3), and educational attainment, marital status, occupation, current chronic disease history, past chronic disease history, physical exercise habits, and attitudes toward menopause treatment as independent variables, ordered multicategorical logistic regression analysis was performed. The results showed that educational attainment and attitudes toward menopause treatment were significant influencing factors on the need for preventive healthcare ($P < 0.05$).

Discussion

3.1 Analysis of Health Characteristics

3.1.1 Disease Status The study results show that regarding disease status, perimenopausal women face not only gynecological issues but also chronic diseases such as cardiovascular and endocrine disorders, consistent with the perspectives outlined in the Expert Consensus on Health Management of Menopausal Women (Primary Care Version) [7]. Chronic diseases that persist without resolution can negatively impact the physical and mental health of perimenopausal women [11]. Therefore, how can these chronic diseases be comprehensively addressed when developing perimenopausal health management strategies? Multidisciplinary team collaboration and multi-level interventions may be key strategies for implementing comprehensive perimenopausal health management [7]. However, it is important to note that while health management team configuration should be rational, it must also fully consider perimenopausal women's expectations for healthcare providers' roles to enhance trust and acceptance. In this study, 28.8% (75/260) and 44.6% (116/260) of respondents believed that perimenopausal care should be provided by gynecological health doctors or menopause specialists, while fewer respondents believed it should be provided by community general practitioners [11.2% (29/260)] or specialist lectures organized by the community [15.4% (40/260)]. Therefore, when configuring perimenopausal health management teams, primary care gynecologists or gynecological health doctors can serve as the core, complemented by general practitioners trained in both Chinese and Western medicine, rehabilitation physicians, endocrinologists, and orthopedic surgeons [7]. In other words, specialized menopause clinics can be established based on residents' actual needs to advance high-quality health management for perimenopausal women with more professional and precise services, enriching the connotation of health management.

3.1.2 Lifestyle Sleep quality among perimenopausal women was generally unsatisfactory, with 73.8% (192/260) reporting fair or poor sleep, consistent with previous research [12] and indicating that sleep issues require focused attention in perimenopausal health management. While pharmacotherapy is the traditional primary treatment for insomnia [13], patients often harbor concerns about medication side effects. In fact, numerous non-pharmacological approaches can alleviate insomnia, including acupuncture and herbal formulas in traditional Chinese medicine, and dietary therapy based on the concept of “medicine and food sharing the same origin,” which may be more acceptable to community residents [14]. Beyond sleep, the survey revealed that over one-third of perimenopausal women had no exercise habits, and even among those who exercised, the intensity was predominantly low to moderate. This falls far short of the recommendations in the 2023 Chinese Guidelines for Menopause Management and Menopausal Hormone Therapy, which advise perimenopausal women to engage in regular aerobic exercise 3-5 times weekly, accumulating 150 minutes per week [2]. Therefore, encouraging physical activity among perimenopausal women may be an important entry point for community health management strategies. Exercise can enhance physical fitness, improve sleep quality, and reduce chronic disease risk [15-16].

How can more perimenopausal women be engaged in exercise? On one hand, experience from psychological behavior interventions suggests that establishing social norms that promote active exercise across society is crucial for developing exercise habits in individuals and groups [17]. Communities can leverage this by starting with a few perimenopausal women leaders to gradually motivate broader community participation in physical activity [6]. On the other hand, insufficient exercise among perimenopausal women may also stem from their being in the “golden period” of career development, where multiple social role burdens leave little time for physical activity. Therefore, perimenopausal health education could consider including men and other age groups to foster understanding of perimenopausal women’s experiences. This approach can help build higher-quality social support systems for perimenopausal women, enabling them to break free from heavy stress burdens and participate in physical exercise. The UK Department for Education is calling for menopause education to be integrated into personal, social, health, and economic education curricula so that both genders across all age groups can receive this education [18].

3.2 Analysis of Knowledge, Attitudes, and Needs

3.2.1 Knowledge and Attitudes Toward Menopause The study found that the majority [58.5% (152/260)] of perimenopausal women had only minimal awareness of menopause, being completely unaware or having merely heard of it. Regarding attitudes toward menopause treatment, 41.9% (109/260) held negative attitudes. This suggests a trend toward normalization and generalization of attitudes toward perimenopause among women in recent years. In fact, perimenopause is a crucial transitional period in women’s lives that warrants

special attention regardless of circumstances. Therefore, health management efforts must continue to strengthen women's knowledge about menopause, its symptoms, and appropriate healthcare-seeking behaviors. Most importantly, factual statements about the adverse effects of symptoms are needed to lower women's threshold for recognizing perimenopausal phenomena and increase their sensitivity to perimenopausal health management.

3.2.2 Health Needs Regarding menopause-related knowledge, 45.0% (117/260) of participants expressed need while 12.3% (32/260) did not. For preventive healthcare needs, 66.5% (173/260) expressed need while 8.9% (23/260) did not, consistent with previous research findings [19-20]. This indicates that perimenopausal women have high overall health needs, particularly for preventive healthcare provided by medical professionals. This result provides an important and feasible pathway for delivering health management services to perimenopausal women. However, community health service institutions should focus on improving service quality in future health management work to effectively meet this population's health needs.

Regarding current sources for obtaining menopause-related knowledge, most participants used the internet [155 (59.6%)], WeChat [94 (36.2%)], and other non-medical sources. While these channels offer high convenience and accessibility, they have limitations. For example, information from these sources may lack scientific evidence; the absence of direct communication between disseminators and recipients increases the risk of misinterpretation; these channels are less personalized than face-to-face appointments or lectures; and older women or those with learning difficulties may lack the technical proficiency to use online resources [21-22]. However, further investigation into preferred sources revealed that substantial proportions of perimenopausal women selected professional medical channels such as health lectures [140 (53.9%)], combined online and offline campaigns by community committees and community doctors [133 (51.2%)], and outpatient clinic visits [118 (45.4%)]. The gap between actual and preferred sources indicates that knowledge acquisition pathways for perimenopausal women remain incomplete. This phenomenon may arise because current medical communication channels have not yet achieved ideal levels of popularity and convenience. Future health education should combine the advantages of both types of channels to ensure that menopause knowledge dissemination is not only professional and authoritative but also understandable, convenient, and accessible. On one hand, hospitals can establish specialized menopause clinics for perimenopausal women [23], provide systematic training for primary care specialists, emphasize prevention, screening, and intervention for perimenopausal syndrome in relevant populations [24], and address the physiological and psychological problems of menopause from a multidisciplinary integrated perspective. On the other hand, with the continuous development of internet-based healthcare, various information channels can provide perimenopausal women with web-based self-management models for relevant knowledge and skills, simplifying consultation processes and effectively reducing the time cost for women to access health

services [25].

3.3 Analysis of Influencing Factors on Health Needs

The findings indicate that perimenopausal women with higher educational attainment in the community may have greater needs for menopause-related knowledge, suggesting that women with access to information have higher health needs. This implies that in actual health management practice, population segmentation is necessary to match the most appropriate services to residents. For example, for women with higher educational attainment, services should be need-based and problem-oriented, while for those with lower educational attainment, a “science popularization first, guidance second” strategy is needed [26]. This study also found that women experiencing three or more menopausal symptoms had greater health needs compared to those with two or fewer symptoms, consistent with previous research showing that women do not seek treatment or timely medical care unless they experience multiple or severe menopausal symptoms [27-28]. Additionally, women with more positive attitudes toward menopause treatment had greater needs for menopause-related knowledge and preventive healthcare. This demonstrates that community health management should develop personalized strategies based on women’s cultural characteristics and overall health status [16].

Contrary to expectations, this study did not find an effect of quality of life on health needs. Although some women’s quality of life had been compromised by menopausal symptoms, their health needs did not significantly increase. This may be because some women are unaware that their physical or psychological symptoms are related to perimenopause [29], mistakenly attributing these symptoms to other conditions and thus not generating health needs for consultation and treatment to alleviate perimenopausal discomfort. This study also found that perimenopausal women’s health needs correlate with their knowledge about menopause. These results indicate that women currently lack comprehensive knowledge about perimenopausal symptoms. Therefore, high-quality health management for perimenopausal women must first intensify science popularization efforts to help women correctly understand this important physiological stage and make appropriate treatment decisions [16].

3.4 Trends in Menopausal Age: Earlier or Later?

In addition to the aforementioned findings, this study offers new insights regarding trends in menopausal age. According to previous statistics, approximately 90.0% of women experienced menopause between ages 45-55, based on data from the China Kadoorie Biobank, which recruited 300,000 Chinese women aged 30-79 between 2004-2008 [30]. However, in this study, only 25.8% (67/260) of women were in the postmenopausal stage, with more women still in the normal menstrual cycle stage [45.8% (119/260)] or menopausal transition stage [28.5% (74/260)]. This suggests that the menopausal age in this survey was significantly later than the national standard from previous data, indicating a

possible trend toward delayed menopause in recent decades. Improved nutritional status and having two or more childbirths can delay menopausal age [30], and the delayed menopause observed in this survey may be related to improved living standards in China and the “two-child policy” implemented since 2015. However, menopausal age is also influenced by various factors including region and lifestyle [30], and further investigation into the specific reasons for delayed menopause among perimenopausal women in this community may be needed to provide reliable evidence for developing health management strategies.

3.5 Limitations and Future Directions

This study contributes to the development of high-quality health management strategies for perimenopausal women by investigating their health characteristics and needs. However, several limitations remain. First, the cross-sectional study design limits the analysis to associations rather than causal relationships between health characteristics and health needs. Second, some questionnaire items required participants to recall information from the past one or three months, which may introduce recall bias for a small portion of the data. Third, the study population was drawn from a single community in Shanghai, a developed city in China, and the findings may not be fully generalizable to other perimenopausal women populations. In summary, the results may require supplementation and validation through exploration of additional health characteristic factors and collection of large-sample data from multiple regions. In future work, our research team will implement precise and long-term closed-loop health management for community perimenopausal populations based on these findings to effectively promote the health and well-being of perimenopausal women and achieve the goal of healthy aging for women.

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

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