



Factors influencing perimenopausal syndrome in clinical nurses: a qualitative study

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Background: The quality of life of women is seriously affected by perimenopausal symptoms and related diseases. The work of female clinical nurses is often stressful and job burnout is not uncommon. Under such conditions, perimenopausal syndrome can be easily induced or aggravated. The health of nurses is positively correlated with nursing quality, residents' health, patients' quality of life and human resource cost in health care institutions. The physical and mental health of perimenopausal nurses is an important issue worth paying attention to.

Methods: Clinical nurses were selected from tertiary and secondary hospitals in Chongqing province by purposive sampling from September to November 2020. Front-line nurses diagnosed with perimenopausal syndrome were recruited from different clinical departments and interviewed using a semi-structured method. The interview results were processed using thematic analysis.

Results: Finally, 16 nurses were included in the present study. Analysis of the interview transcriptions identified four themes: patient factors, work environment factors, personal factors, and family social support factors.

Conclusions: The themes influencing perimenopausal syndrome in clinical nurses include aspects of patient factors, working environment factors, personal factors, and family social support factors. Our findings provide an important reference for policy makers to develop management programs that benefit nurses and ensure the safety of patients.

Keywords: Nurse; perimenopausal syndrome; influencing factors; qualitative study

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Introduction

The perimenopausal period is defined as that from the onset of menstrual disorders to 1 year after menopause, according to the Stages of Reproductive Aging Workshop-10 (STRW-10) statement (1). Female menopause occurs at 45–55 years of

age in most cases, while the perimenopausal period marks the beginning of physiological changes of reproductive aging in women.

The perimenopausal syndrome refers to a series of autonomic nervous system dysfunction and

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neuropsychological symptoms caused by the fluctuation or decrease of sex hormone levels during the perimenopausal period. The main characteristics include hot flashes, menstrual changes, emotional fluctuations, fatigue, insomnia, and bone and joint pain, all of which vary in severity and duration. At present, there are about 167 million perimenopausal women in China, accounting for about 1/4 of women this age in the world, and the incidence of the perimenopausal syndrome is 68.1% (2). By 2030, the number of effected women is expected to reach 280 million in China and to grow to 1.2 billion worldwide (3,4). Clinical studies have shown that women with perimenopausal syndrome can have a series of physiological and psychological problems which will seriously affect their normal life and work and even cause social problems such as family discord. Furthermore, the increased occurrence of perimenopausal is related to population aging to some extent. With the acceleration of population aging in China, the growth rate of the perimenopausal female population has been further accelerated.

The quality of life of women in the perimenopausal period is seriously affected by perimenopausal symptoms and related diseases (5,6). Moreover, occupation is closely related to its occurrence and severity (7). Female clinical nurses work in a stressful environment and commonly experience job burnout, and under such conditions, perimenopausal syndrome can be easily induced or aggravated (8). The physical and mental health of clinical nurses is the main factor for ensuring the quality and safety of nursing, and it is critical to recognize the influencing factors of perimenopausal syndrome among this group to take effective pre-control measures.

To our best knowledge, only a few reports on perimenopausal syndrome have focused on clinical nurses. A survey from Spain showed that the quality of life of perimenopausal working teachers was higher than that of nurses (9), and it was reported that 34% of nurses had perimenopausal symptoms related to job burnout (10). A survey of 1,700 nurses aged 45–60 years working in Japanese hospitals found that the occurrence of perimenopausal symptoms was related to work stress, and the top three symptoms were fatigue, irritability, and inattention (11), while in China, researchers reported that the prevalence among clinical nurses ranged from 63.7–86.3% (12,13). The severity of perimenopausal syndrome varies from mild to moderate (12–14), and the most prominent clinical manifestations reported were fatigue weakness, muscle bone and joint pain, insomnia, anxiety, and dizziness (10,12,14).

The reported risk factors for perimenopausal syndrome in clinical nurses included strong light, high levels of noise, weak social support, heavy and intense work stress, chronic illness, and moderate depression (12,14,15), poor health of parents and spouses, stressful relationships with children, major negative events, introversion, poor sleep quality, and low life satisfaction (16,17). On the other hand, regular participation in sports, regular intake of beans, strong social support, high job satisfaction, and high life satisfaction were identified as protective factors against perimenopausal syndrome (12,14). Notably, most studies on the influencing factors of perimenopausal syndrome have been quantitative, and few have been qualitative.

At present, most similar studies carry out cross-sectional status survey through questionnaires and scales, without in-depth discussion of relevant influencing factors. This study adopts qualitative research method to explore the influencing factors of perimenopausal syndrome by conducting in-depth interviews with clinical nurses who met its diagnostic criteria. The study's purpose was to provide evidence for exploring interventions to promote the physical and mental health of perimenopausal nurses. We present the following article in accordance with the COREQ reporting checklist (available at <https://apm.amegroups.com/article/view/10.21037/apm-21-3572/rc>).

Methods

Design and participants

Clinical nurses were selected from tertiary and secondary hospitals in Chongqing province by purposive sampling from September to November 2020. The inclusion criteria were: (I) clinical frontline nurses involved in shift work aged between 40 and 55 years; (II) nurses with a total symptom score ≥ 7 based on the modified Kupperman Self-Assessment Scale of Menopausal Symptoms (Kupperman Self-Assessment Scale) and who met the diagnostic criteria for perimenopausal syndrome; (III) nurses with clear articulation, who could provide abundant information and were willing to describe their work and emotional state in an open manner. The sample size was based on the repeated data of the interviewees, and no new topics appeared in the data analysis.

Data collection

Using a phenomenological method, a semi-structured interview outline was developed based on a literature review

through consultation with nursing management experts. Semi-structured Interviews are informal Interviews that follow a broad outline of Interviews. This method only has a rough basic requirement for the condition of the interviewee and the questions to be asked. After pre-interviews with three perimenopausal nurses, the following interview outline was finalized after several rounds of revision. The outline included five key parts: (I) in the process of providing care to patients, what kind of emotional experience do you have in the face of the patient's pain or helplessness? (II) What types of situations most commonly trigger your negative emotions in clinical practice, and how does it affect your life? (III) In your study, family, society, or life, what types of events make you feel happy or unhappy? (IV) Do you find it difficult to balance work and family at the same time? (V) What kind of troubles do you find in your daily work?

An informed consent form with details on the process and purpose of the study, confidentiality, risks and benefits, and voluntary participation was provided to all the participants via a link, and the participants provided their consent before participating. Before the interviews, the interviewees were contacted by telephone to explain the purpose and the specific process. The researcher and the interviewee agreed on the interview time and place in advance to ensure that the interview environment was quiet, comfortable, and undisturbed, and the whole interview was recorded synchronously. Interviewers listened attentively during the interview and carefully observed and recorded the emotional changes of the interviewees, including their facial expressions and body language. The duration of each interview was 30–60 min. Only the first letter of the subjects' surnames was used to protect their confidentiality. During the interview, participants may terminate the interview or answer questions selectively at any time.

Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013) and the study protocol was approved by the Human Ethics Committee of The First Affiliated Hospital of Chongqing Medical University (ethical approval number: 2019-241), China. Written informed consent was obtained from individual participants.

Data analysis

After the interview, the content was transcribed into

words according to Claizzi's 7-step analysis method for phenomenological data. Researchers carefully read all the interview records, extracted significant statements, coded the repeated meaningful points of view, wrote a detailed and comprehensive description of the encoded views, identified similar views, sublimated the theme concept, and returned to the interviewees for verification. Researchers then sorted the points according to a certain order and theme.

Scientific rigor

To ensure scientific rigor, evaluation criteria provided by Lincoln and Guba [1986] were adapted in the qualitative study. For credibility, all participants were invited to assist in the confirmation process, and external audits were conducted to establish dependability. Confirmability was achieved by analyzing triangulation and iterative discussion, and each finding was independently coded, categorized and connected by three members to explore the rich and well-developed data. In addition, team members collectively discussed the findings until reaching a final consensus. To achieve transferability, the maximum variation of sampling and sufficient descriptions of phenomena were used to enhance the quality of the study.

Results

In this study, 16 clinical first-line nurses, including 6 in level-II hospitals and 10 in level-III hospitals, were interviewed and described their experiences. The mean age of interviewees was 46.1 ± 3.8 (mean \pm SD) years, and the mean work experience was 25.4 ± 5.0 (mean \pm SD) years. Their mean Kupperman symptom score for menopausal symptoms was 15.75 ± 7.78 (mean \pm SD) points (*Table 1*).

Influencing factors

Theme 1: patient factors

Patients' serious conditions and poor prognosis

A patient's severe illness and poor prognosis after prolonged treatment can trigger a sense of powerlessness in the nurse. N6, N13: "I feel a sense of loss when a patient is dissatisfied with the severity of their illness and cost of treatment, and sometimes the loss of both life and money."

Patients' lack of understanding and recognition of nursing work

Most respondents believed that patients or family members who do not understand nursing work will feel aggrieved

Table 1 General profile of the interviewees

Number	Age, years	Kupperman score	Education	Marital status	Professional title	Department	Years of experience
N1	42	10	Bachelor	Married	Nurse-in-charge	Gynecology	17
N2	44	17	Bachelor	Married	Professor of nursing	Hepatology	24
N3	47	31	Bachelor	Married	Nurse-in-charge	Obstetrics	25
N4	46	13	Junior college	Remarried	Nurse practitioner	Orthopedics	21
N5	46	19	Junior college	Married	Nurse-in-charge	Ophthalmology	26
N6	43	8	Bachelor	Married	Professor of nursing	Hematology	23
N7	45	11	Bachelor	Remarried	Nurse-in-charge	Mammary gland	26
N8	42	15	Bachelor	Married	Professor of nursing	Endocrinology	20
N9	50	21	Junior college	Married	Professor of nursing	Hemodialysis	29
N10	44	9	Junior college	Married	Professor of nursing	Gastrointestinal	25
N11	49	12	Junior college	Married	Professor of nursing	Cardiovascular	30
N12	45	11	Junior college	Married	Professor of nursing	Dermatology	23
N13	41	7	Bachelor	Married	Professor of nursing	Infection	21
N14	55	34	Technical secondary school	Married	Nurse-in-charge	TCM	37
N15	48	14	Bachelor	Married	Professor of nursing	Emergency	28
N16	51	20	Bachelor	Married	Nurse-in-charge	ENT	32

TCM, traditional Chinese medicine; ENT, ear, nose and throat.

and frustrated, and when nurses face loud quarrels, aggressive behavior will lead to irritability, grievances, and sadness, which will accelerate job burnout. N3: “Patients’ family members asked me to transfer the cost of B-ultrasound examination after discharge into the hospitalization fee. I explained to them that this is not possible. They said that my brain was sick, and he also took a video of me with his mobile phone. My mood was greatly disrupted.” N8: “When you give good advice to a patient, he will not listen to you at all. One word from a doctor makes more sense than 10 sentences from a nurse. I am not happy, and sometimes I cannot sleep well.” N10: “Sometimes it is clearly for the good of the patient, but the patient thinks there is another intention?” On the other hand, many nurses report their satisfaction and happiness often come from the praise and recognition of patients or their family members.

Theme 2: working environment factors

Inadequate staffing, high intensity of work

Most interviewees said that inadequate staffing and overwork lead to exhaustion. N4, N5: “With many patients around here, shouting everywhere; the heart will be very irritable.” N9: “There are too few nurses. There are only

8 nurses, including the head nurse. We usually have a heavy workload and are very tired. We often have not taken leave all the time. Especially when the patients have some unexpected situations, we are much busier.”

Poor competency of new nurses

When senior nurses work with new nurses, senior nurses are stressed by the need to provide additional guidance. N6: “I was annoyed when some new nurses can’t remember information that I’ve repeated many times. They are not well-planned in their work and bring troubles for the next shift.” N12: “Six or seven nurses were new, and they were not familiar with the rules and regulations. I took them to the ward alone. At that time, I was under great pressure. Even at night, I still worry that they might make mistakes.” N14, N16: “It’s quite frustrating to guide poorly trained nurses. I hope the department of nursing will raise the threshold when recruiting new nurses.”

Management measures are not humanized

Some nurses report their managers are not good at listening, do not listen to advice, and do not understand the actual situation. When errors occur, leaders only criticize nurses, which lead to disappointment and a lack of enthusiasm. N8: “Hospital leaders take it for granted to put forward some policies,

did not listen to the voice of the staff. Even if staff suggest, they never consider and adopt. Our efforts are in vain." N10: "One psychiatric patient went lost. The fact is that there are problems in the system, safety and fire control, facilities. However, all the problems are attributed to the nurses. I feel very sad to be denied for all our previous achievements." "The head nurse of the outpatient department contradicted the Dean, and there were differences in the work. The Dean denied all the achievements of others in the past and dismissed the head nurse's post, which made people feel very cold hearted." N15: "The hospital has set up an information desk in our emergency department. The number of outpatient services is more than 10,000 a day. At least 300 or 400 people come to ask for directions. We have to receive more than 100 emergency patients. Outpatient and emergency services should be separated, and the leaders still don't understand us."

Improper income distribution

Nurses' labor is not rewarded accordingly. N7, N13: "There is a big difference in the welfare benefits between nurses within personnel establishment and those without. Nurses with no personnel establishment were poorly paid while still doing the same job as those within." N9: "If a nurse outside the personnel establishment work on holidays, they receive only 50 RMB instead of being triple paid for those within personnel establishment." N15: "We need to provide nursing care for acute and critical care patients and are under great pressure. However, our payment is even lower than nurses drawing blood in outpatient clinics, which is quite unfair."

Theme 3: individual factors

Inadequate self-empowerment and inability to do the job

Diminished physiological functions, inadequate knowledge, or lack of proficiency in skill increase the psychological stress of nurses. New nursing concepts and digital applications become the new pressure for senior clinical nurses. N6, N10, and N11: "As I am getting old, my memory is declining, and I can't keep pace. Participation in national competitions and preparation for inspection is quite exhausted." N4: "I didn't update my professional knowledge in time, and I can't keep pace with the development of the field. I felt quite nervous when head nurse asked questions for inspection." N6: "I belong to the post-70s generation. Most of us are rural background and are quite limited in terms of accepting new things. And we feel self-abased in computer applications." In addition, lack of research ability leads to difficulty with professional promotion, N2, N7: "I feel quite stressful to be the leader of the team due to the lack of research ability".

Being introvert, sensitive, and suspicious

People with introvert personality, less stable emotion, and

poor self-control are also less resistant to negative factors and circumstances. N1: "When people don't understand me, I won't show on face. But inside, I feel heartbroken and disappointed." N13: "When temporary nurses complain about the mismatch between payment and workload, a few colleagues at work will go along with it. However, I feel bad."

Theme 4: family and social factors

Some of the nurses indicated that the heavy burden of family care increases the stress of life. N3: "My father suffers from Alzheimer's, and he can't take care of himself. I need to take care of him after work. I feel exhausted." N11: "After the night shift, I feel tired physically and mentally. I have little energy to take care of things at home. Sometimes my family will complain."

Discussion

In the present study, we found that the occurrence of perimenopausal syndrome was affected by many factors. This phenomenon should be given high priority from the perspective of management to help nurses during their perimenopausal period to reduce their stress and promote their physical and mental health.

According to our analysis, both patient conditions and a lack of understanding and recognition affected nurses' emotions. Nurses have been exposed to patients' traumatic events and have experienced repeated contact with the pain of others, which can result in excessive or misled empathy. Research has shown that the empathy ability of nurses gradually declines, which may lead to guilt and adverse consequences. This phenomenon is also called empathy fatigue, and was also identified by Tian *et al.* (18). It has been reported that up to 40% of clinical nurses experience empathy fatigue (19), which has adverse effects on their physical and mental health and can lead to an increase in nursing adverse events in serious cases (20). Although good communication and nurse-patient relationships are critical in their work, nurses should maintain a moderate and flexible contact distance, use empathy reasonably, and present a good psychological state to offset the influence of negative emotions and reduce the impact of perimenopausal syndrome.

A lack of professional respect can make nurses tire of their work, leading to a lack of sense of professional achievement and value and aggravating their burden and dissatisfaction. In clinical work, there is no clear division of labor in the activities of high and low seniority nurses, and most of the work of both is devoted to work with low

repetition and low technical content, which does not reflect the value of nursing work and cannot be understood and recognized. Some studies have shown that the lower the level of professional identity of nurses, the more severe their perceived job stress and job burnout (21). The emotional symptoms of perimenopausal syndrome are related to drastic changes in the level of hormones during this period, and the lack of social support and recognition following negative events. Moreover, these factors affect each other and jointly cause harm, thus increasing the risk of perimenopausal syndrome (22). Therefore, development routes are needed to create more suitable positions for senior nurses, such as general teaching, responsible team leader, specialist nurses, and senior practice nurses (APN), and to allow participation in nursing rounds and consultations to better reflect their professional value.

Another important influencing factor was the poor working environment, which increased work pressure on nurses. Studies have shown that the main source of pressure on middle-aged nurses is work overloaded, and 80% reported physical and mental health problems (23). The results of this experiment are similar with formers. In addition, the present study found that due to the lack of nursing ability of new nurses, unexpected work errors often occur, which increases the work pressure on senior nurses, leading to an increased risk of perimenopausal syndrome. This is something that has not been mentioned in previous studies. Due to the lack of professional knowledge, clinical experience, and safety awareness of young nurses (24), this is a high-risk group for nursing errors, which greatly affects the quality of hospital care and patient safety (25). Senior nurses play the roles of responsible group leader and instructor and must provide supervision and guidance, and nursing errors undoubtedly increase their psychological pressure. It was reported that women involved in nursing adverse events believe they hold undeniable responsibility, and generally experience negative physical and mental uneasiness such as self-blame, regret, depression, fear, and insomnia. These negative experiences can last for several months to several years, and some nurses never completely extricate themselves (26). Determining how to quickly improve the post graduate competency of new nurses is a problem to which nursing managers pay close attention.

In the interview, most nurses stated they sought to effectively communicate with leaders and obtain their understanding and recognition of their work, and this was a driving force for productive work and played a positive role in their emotional regulation. It was reported

that nurses receiving the appreciation and recognition of leaders in charge is an important channel for them to achieve psychological satisfaction (27), and the lower the psychological capital of nurses, the worse their career status (28). Therefore, nursing managers should create a relaxed and happy working atmosphere for their staff. In addition, this study found that salary and welfare have a great impact on the health of perimenopausal nurses, especially on mental health, which is consistent with the research results of Liu *et al.* (29). This may be due to salary and welfare being the most intuitive rewards for nurses' work and the guarantee to meet their basic living needs and basis for pursuing a higher quality of life. Moreover, nurses entering the perimenopausal period are often faced with aging parents living with multiple diseases, and large education expenses for their children, and subjective satisfaction with salary and welfare will directly affect the awareness of their own health (29). This suggests that policy makers should pay special attention to increasing salary or welfare to reduce the negative effect of hindrance pressure and improve job satisfaction as part of a strategy for reducing the occurrence of perimenopausal syndrome. Among these, economic salary has more influence than spiritual salary (30).

We also found that inadequate or reduced working capacity can increase insecurity and stress among nurses. With increased age and a decline in physiological functioning, senior clinical front-line nurses experience insufficient physical strength, insufficient energy, and poor memory. When facing a busy work and night shift, they are more tired, and the higher the degree of mismatch between the individual and work, the more serious the work fatigue. It has been confirmed that the comprehensive evaluation of the self-rated health of perimenopausal nurses is below the middle level, which is lower than the self-rated health level of the general population (31). Overall, 61.58% of nurses thought that they were easily tired and prone to palpitation, poor appetite, and dizziness. The health status of middle-aged nurses has a great impact on their mental health (32). Therefore, managers should pay attention to their physiological changes, and determining how to allocate and use them reasonably is a problem worthy of attention.

Through research, new discoveries show that a limited ability to acquire new knowledge and scientific research increases the work pressure of senior nurses. Due to their late exposure to modern information technology, the acquisition of new knowledge is limited, resulting in their learning being unable to keep pace with progress. Although most had obtained a junior college or undergraduate

education through self-study or continuing education after graduation, their academic education lags behind the actual demand, and their knowledge of scientific research is insufficient. Although clinical experience makes nurses good at finding problems, the clinical problems cannot be transformed into scientific research questions. Therefore, the output of scientific research papers is less than that for doctors and the quality of the research is low. The obstacles are encountered in title evaluation, and retention of the same professional title qualification for a long time can easily lead to the emergence of a personal “career plateau” (33). If the work of nurses is not recognized, their degree of satisfaction will also decrease, and a series of psychological disorder syndromes such as guilt, frustration, or powerlessness may occur (34). The reasons may reflect the fact that a professional title is, to some extent, an explicit form of realizing one’s own value and a manifestation of one’s ability. In addition, some studies have shown that the average score for self-rated health of nurses with the title of chief nurse is higher than that of nurses with other titles (24), and those with a higher professional title and position have a higher sense of career attainment (35). This suggests that managers should attach great importance to the career development of senior nurses, providing opportunities for them to learn new knowledge and skills, especially to improve their ability to conduct scientific research to assist their efforts towards promotion. For example: establish scientific research group, set up scientific research nurse, carry out scientific research study regularly.

The present study also showed that personality characteristics such as introversion and sensitivity could lead to a deviation of the views of nurses on problems and affect their emotions. Personality is a stable psychological process which has a significant impact on the behavior, emotion, and adaptative ability of individuals (36). The study shows that nurses who were not good at expressing emotions and were easily influenced by people and things around them had more severe symptoms of perimenopausal syndrome, which is consistent with the research results of Guo *et al.* and Ruan *et al.* (37,38). This is because they were sensitive and suspicious, and introverts have less communication with others. If negative emotions are not released promptly when they exceed the self-regulation range, physiological dysfunction is induced, endocrine disorders can be aggravated, and perimenopausal syndrome can be more severe.

Insufficient social support and a heavy family burden can increase the physical and mental burden of nurses. During

the interview, it was found that conflicts between work and caring for a family can cause nurses to feel inadequate or guilty because the family is often the center of a woman’s life and activities. Having this place to obtain love and a sense of belonging provides a strong foundation for their work. If family members can give consideration and support so that nurses are allowed to rest after finishing their busy clinical work, most perimenopausal nurses can get through this period more easily (39). The higher the level of family social support for nurses, the higher their subjective well-being (40). If family social support is poor, traumatic stress will accumulate, and if other coping strategies are not implemented in time, nurses can develop many physiological and psychological symptoms, leading to the aggravation of symptoms of perimenopausal syndrome. Therefore, it is very important to identify the availability and effectiveness of social support networks and find timely alternative coping strategies to improve the symptoms of perimenopausal syndrome.

To our best knowledge, the present study is the first qualitative study focusing on exploring influencing perimenopausal syndrome in clinical nurses. There are several limitations to the present study. First, we only investigated clinical nurses in two hospitals in Chongqing, which may have introduced selectivity bias, and secondly, the subjects were not evenly distributed in the departments. The sample size and department scope should be expanded for future research and discussion.

In conclusion, the themes of influencing perimenopausal syndrome in clinical nurses include aspects of patient factors, working environment factors, personal factors, and family social support factors. Our findings provide an important reference for policy makers to develop management programs that benefit nurses and ensure the safety of patients.

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Footnote

Reporting Checklist: The authors have completed the COREQ reporting checklist. Available at <https://apm>.

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Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://apm.amegroups.com/article/view/10.21037/apm-21-3572/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study protocol was conducted in accordance with the Declaration of Helsinki (as revised in 2013) and the study protocol was approved by the Human Ethics Committee of The First Affiliated Hospital of Chongqing Medical University (ethical approval number: 2019-241), China. Written informed consent was obtained from individual participants.

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References

1. Harlow SD, Gass M, Hall JE, et al. Executive summary of the Stages of Reproductive Aging Workshop + 10: addressing the unfinished agenda of staging reproductive aging. *J Clin Endocrinol Metab* 2012;97:1159-68.
2. Lan Y, Huang Y, Song Y, et al. Prevalence, severity, and associated factors of menopausal symptoms in middle-aged Chinese women: a community-based cross-sectional study in southeast China. *Menopause* 2017;24:1200-7.
3. Hill K. The demography of menopause. *Maturitas* 1996;23:113-27.
4. Zhao C, Wang X, Huang Y, et al. Quality-of-life assessment in 450 Chinese menopausal women. *Journal of First Military Medical University* 2009;29:2309-10.
5. El Khoudary SR, Greendale G, Crawford SL, et al. The menopause transition and women's health at midlife: a progress report from the Study of Women's Health Across the Nation (SWAN). *Menopause* 2019;26:1213-27.
6. Larroy C, Marin Martin C, Lopez-Picado A, et al. The impact of perimenopausal symptomatology, sociodemographic status and knowledge of menopause on women's quality of life. *Arch Gynecol Obstet* 2020;301:1061-8.
7. Du L, Xu B, Huang C, et al. Menopausal Symptoms and Perimenopausal Healthcare-Seeking Behavior in Women Aged 40-60 Years: A Community-Based Cross-Sectional Survey in Shanghai, China. *Int J Environ Res Public Health* 2020;17:2640.
8. Sarafis P, Rousaki E, Tsounis A, et al. The impact of occupational stress on nurses' caring behaviors and their health related quality of life. *BMC Nurs* 2016;15:56.
9. Márquez Membrive J, Granero-Molina J, Solvas Salmerón MJ, et al. Quality of life in perimenopausal women working in the health and educational system. *Rev Lat Am Enfermagem* 2011;19:1314-21.
10. Converso D, Viotti S, Sottimano I, et al. The relationship between menopausal symptoms and burnout. A cross-sectional study among nurses. *BMC Womens Health* 2019;19:148.
11. Matsuzaki K, Uemura H, Yasui T. Associations of menopausal symptoms with job-related stress factors in nurses in Japan. *Maturitas* 2014;79:77-85.
12. Cao F, Hao Y, Lei P, et al. Logistic regression analysis on Influencing Factors of perimenopausal syndrome in clinical nurses. *Hebei Medical Journal* 2014;36:2355-7.
13. Pan Y, Chen C, Liu G, et al. Analysis of impact factors of menopausal symptoms of clinical nurses in Tangshan city. *Maternal & Child Health Care of China* 2014;29:390-2.
14. Karakoç H, Uçtu AK, Özerdoğan N. Genitourinary syndrome of menopause: effects on related factors, quality of life, and self-care power. *Prz Menopausalny* 2019;18:15-22.
15. Lei P. Influence of working environment and social support on perimenopausal syndrome of clinical nurses in Tianjin. *Continuing Medical Education* 2015;29:79-81.
16. Bariola E, Jack G, Pitts M, et al. Employment conditions and work-related stressors are associated with menopausal symptom reporting among perimenopausal and postmenopausal women. *Menopause* 2017;24:247-51.
17. Nowakowska I, Rasinska R, Glowacka MD. Quality of nurses' working life in the perimenopausal period: influence of selected factors of work environment in medical institutions. *Prz Menopausalny* 2012;16:417.
18. Tian M, Shi Y, Liu H, et al. Clinical nurses' perception of

- factors influencing compassion fatigue: a qualitative study. *Journal of Nursing Science* 2017;32:60-3.
19. Duarte J, Pinto-Gouveia J. Effectiveness of a mindfulness-based intervention on oncology nurses' burnout and compassion fatigue symptoms: A non-randomized study. *Int J Nurs Stud* 2016;64:98-107.
 20. Maiden J, Georges JM, Connelly CD. Moral distress, compassion fatigue, and perceptions about medication errors in certified critical care nurses. *Dimens Crit Care Nurs* 2011;30:339-45.
 21. Munnangi S, Dupiton L, Boutin A, et al. Burnout, Perceived Stress, and Job Satisfaction Among Trauma Nurses at a Level I Safety-Net Trauma Center. *J Trauma Nurs* 2018;25:4-13.
 22. Li RX, Ma M, Xiao XR, et al. Perimenopausal syndrome and mood disorders in perimenopause: prevalence, severity, relationships, and risk factors. *Medicine (Baltimore)* 2016;95:e4466.
 23. Dong X, Li Q. Analysis and Countermeasures of pressure sources and physical and mental diseases of middle-aged nurses. *Chinese Journal of Woman and Child Health Research* 2016;27:400-1.
 24. Müller M, Jürgens J, Redaelli M, et al. Impact of the communication and patient hand-off tool SBAR on patient safety: a systematic review. *BMJ Open* 2018;8:e022202.
 25. Gyamfi J, Plange-Rhule J, Iwelunmor J, et al. Training nurses in task-shifting strategies for the management and control of hypertension in Ghana: a mixed-methods study. *BMC Health Serv Res* 2017;17:104.
 26. Tessman L. Moral distress in health care: when is it fitting? *Med Health Care Philos* 2020;23:165-77.
 27. Uchmanowicz I, Manulik S, Lomper K, et al. Life satisfaction, job satisfaction, life orientation and occupational burnout among nurses and midwives in medical institutions in Poland: a cross-sectional study. *BMJ Open* 2019;9:e024296.
 28. Luan X, Wang P, Hou W, et al. Job stress and burnout: A comparative study of senior and head nurses in China. *Nurs Health Sci* 2017;19:163-9.
 29. Liu Z, Wei W, You J, et al. Correlation analysis between self-rated health status and job satisfaction of perimenopausal nurses. *Guangdong Medical Journal* 2017;38:1258-61.
 30. Liu J, Zhu B, Wu J, et al. Job satisfaction, work stress, and turnover intentions among rural health workers: a cross-sectional study in 11 western provinces of China. *BMC Fam Pract* 2019;20:9.
 31. Liu Z, Wei W, Zhang H, et al. A survey of self-rated health status of nurses during perimenopausal period. *Chinese Journal of Nursing Education* 2018;15:453-6.
 32. Zhang H. Investigation of Level of Mental Health of Middle-aged Nurse and Its Influencing Factors. *Medical Innovation of China* 2017;14:52-5.
 33. Liu D, Yang X, Li Q, et al. Prevalence and associated factors of the career plateau of primary care providers in Heilongjiang, China: a cross-sectional study. *BMC Fam Pract* 2021;22:38.
 34. Happell B, Dwyer T, Reid-Searl K, et al. Nurses and stress: recognizing causes and seeking solutions. *J Nurs Manag* 2013;21:638-47.
 35. Zhao S, Liu L, Chen H. Factors influencing the occupational well-being of experienced nurses. *International Journal of Nursing Sciences* 2015;2:378-82.
 36. Borkoles E, Reynolds N, Ski CF, et al. Relationship between Type-D personality, physical activity behaviour and climacteric symptoms. *BMC Womens Health* 2015;15:18.
 37. Guo L, Ren L, Zhang C. Relationship between depression and inflammatory factors and brain-derived neurotrophic factor in patients with perimenopause syndrome. *Exp Ther Med* 2018;15:4436-40.
 38. Ruan X, Cui Y, Du J, et al. Prevalence of climacteric symptoms comparing perimenopausal and postmenopausal Chinese women. *J Psychosom Obstet Gynaecol* 2017;38:161-9.
 39. Gibbs Z, Kulkarni J. Risk factors for depression during perimenopause. In: Barnes DL, editor. *Women's reproductive mental health across the lifespan*. Cham: Springer, 2014:215-33.
 40. Wang L, Tao H, Bowers BJ, et al. Influence of Social Support and Self-Efficacy on Resilience of Early Career Registered Nurses. *West J Nurs Res* 2018;40:648-64.
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