ORIGINAL ARTICLE

The Role of Pharmacists in Pharmaceutical Services and Care for Menopausal Women: A Narrative Review

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ABSTRACT

Menopause is an anticipated physiological change in women marked by the end of the menstrual cycle, The complexity of its symptoms requires comprehensive and multidisciplinary interventions, including support from pharmacists. This article aims to review the pharmacist's function in pharmaceutical care for menopausal women. The analysis was conducted narratively, highlighting key themes related to pharmacists' understanding of hormone replacement therapy (HRT) and non-pharmacological interventions, the types of pharmaceutical services provided, and challenges in practice implementation. Based on literatures obtained, it is indicated that pharmacists play a crucial function in education, counseling, therapy monitoring, and promoting a healthy lifestyle for menopausal women. Pharmacist involvement has been shown to improve patient knowledge, therapy adherence, treatment efficacy, and the prevention of long-term complications such as diabetes, osteoporosis, and cardiovascular disease. However, challenges such as limited knowledge, lack of training, limited consultation privacy, and low patient awareness of the pharmacist's role remain. In conclusion, strengthening the role of pharmacists in pharmaceutical care for menopausal women is crucial for improving patients' quality of life, and further research is needed to develop more innovative and sustainable intervention models.

Keywords: Menopause, Menopausal Symptoms, Pharmacists, Pharmaceutical Care, Women.

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Introduction

Menopause is a physiological process that occurs in women between the ages of 44 and 55. This event is marked by the permanent discontinuation of menstruation due to decreased ovarian hormone activity [1,2]. The transition to menopause is generally accompanied by complex changes in the endocrine, biological, and clinical systems, including vasomotor symptoms, sleep disturbances, mood fluctuations, and urogenital complaints. These manifestations have the potential to reduce quality of life and productivity and impact women's health in the long-term, including an increased risk of osteoporosis, cardiovascular disease, and metabolic disorders [3,4]. The discomfort experienced by women experiencing this condition led to the development of a menopausal symptom checklist in 1959 by Kupperman, Wetchler, and Blatt [5].

Menopause management still faces various challenges, such as limited information, social stigma, and concerns about hormone replacement therapy (HRT). Many women feel their symptoms are ignored or inadequately addressed within the healthcare system [6]. Therefore, a multidisciplinary approach is needed that provides evidence-based education, empathetic counseling, and ongoing support in managing menopausal symptoms [7].

As accessible healthcare professionals, pharmacists assume a pivotal role in

providing pharmaceutical care and services to menopausal women. This role includes education on pharmacological and non-pharmacological therapies, medication counseling, side effect monitoring, healthy lifestyle promotion, and interprofessional collaboration in comprehensive care. Evidence from various studies shows that active involvement of pharmacists can improve patient compliance, therapy effectiveness, and quality of life of menopausal women [8-10].

However, scientific studies on the contribution of pharmacists to menopause care remain limited, particularly in developing countries like Indonesia. The available literature generally focuses on clinical aspects or hormonal therapy, while the specific role of pharmacists in education, counseling, and the development of innovative service models remains underexplored. Therefore, this article aims to review the existing literature on the role of pharmacists in pharmaceutical care for menopausal women, drawing on relevant national and international literature.

METHODS

To systematically approach our literature search for this narrative review, we structured our research objective using a PICO framework. Our scope targeted menopausal women as the primary population, focusing on pharmacist-led pharmaceutical services and care as the core intervention. While a formal comparison group was not required for the descriptive nature of this review, the primary outcomes of interest were the documented functions, responsibilities, and overall impact of pharmacists in supporting women through menopause.A search for scientific research related to the role of pharmacists in pharmaceutical care and services for menopausal women was conducted using Google Scholar and PubMed.

The literature search and review were conducted using specific Boolean search strings across both databases to combine terms related to menopause, pharmacists, and women. For PubMed, the comprehensive search string utilized was ("Menopause" OR "Menopausal Symptoms") AND ("Pharmacist" OR "Pharmaceutical Care") AND "Women", resulting in 107 articles. For Google Scholar, the exact string phrase entered was "Menopause" AND "Pharmaceutical Care" AND "Pharmacist", which yielded approximately 74,100 articles. Following the initial literature search, all retrieved records underwent a rigorous screening process. Articles were included if they explicitly evaluated the role of pharmacists in pharmaceutical care, medication management, counseling, or health interventions for menopausal women. Conversely, studies focusing solely on the clinical pathophysiology of menopause without pharmacist involvement, as well as editorials and incomplete conference abstracts, were excluded. No chronological limits were imposed on the search due to the scarcity of literature on this topic. After evaluating 52 full-text articles for eligibility, 29 records were excluded based on these criteria, leaving a final total of 23 articles to be synthesized in this review.

Experimental articles, observational articles, systematic reviews, and professional practice reports were included if relevant to the topic. All articles obtained were analyzed using a narrative approach to explore the main themes, including: (1) pharmacists' understanding of hormone replacement therapy and non-pharmacological therapy, (2) forms of pharmaceutical services provided to menopausal women, (3) challenges in implementing practices, and (4) recommendations for strengthening the role of pharmacists in women's health services.

RESULT AND DISCUSSION

Literature Search and Study Selection

A total of 74,207 records were initially identified through database searching, with 107 articles retrieved from PubMed and approximately 74,100 from Google Scholar. After an initial screening of titles and abstracts for relevance, 52 full-text articles were sought for retrieval and thoroughly evaluated for eligibility. Of these, 29 articles were excluded because they did not meet the predefined inclusion criteria—primarily due to a focus solely on the clinical management of menopause without direct pharmacist involvement, or being incomplete document types such as abstracts and editorials. Ultimately, 23 articles met all criteria and were included in the final review for qualitative synthesis. The complete screening and selection process

is visually mapped out in the PRISMA flow diagram **(Figure 1)**.

Menopause

Menopause is a physiological event that women experience after middle age. It is defined traditionally as the time of a woman's last menstrual period; however, this definition is not applicable to women with menstrual irregularities or amenorrhea due to various causes before their natural menopausal transition [1]. The menopausal transition typically begins around age 47 with the start of menstrual changes and terminates with the last menstrual period, often referred to as perimenopause. Perimenopause refers to the menopausal transition through the 12 months following the last menstrual cycle representing the early postmenopausal stage [2-4]. The onset of menopause is typically around age 49 and is quite consistent across geographic regions and ethnic groups. Evidence of a familial predisposition to early or late menopause is often found, which reinforces the concept of genetic programming for ovarian decline [1,11].

Menopause represents a pivotal stage in in women's aging and reproductive health, with significant consequences for body fat distribution, lipid metabolism, and neurodegenerative processes. Menopause occurs at the time of the last menstrual period (FMP), which can only be reliably determined one year or more after the event. Further critical stages defined by the WHO include post-menopause;

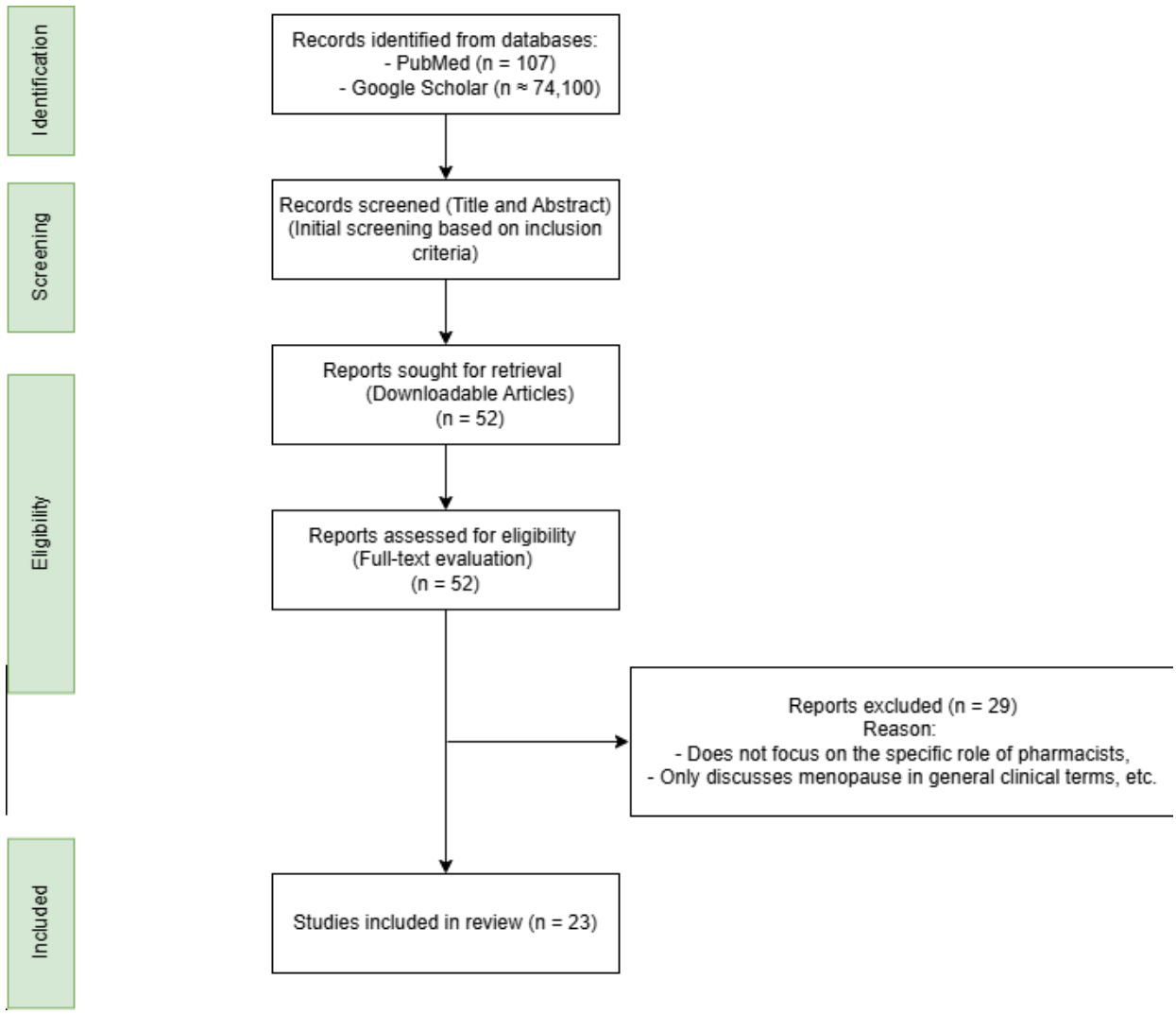

Figure 1. PRISMA Flow Diagram Outlining The Database Search, Screening, And Selection Process of Articles for The Review.

perimenopause (i.e., the period before FMP and the first year after menopause occurred); and the menopausal transition (i.e., the time period before FMP, when variability in the menstrual cycle typically increases) [12].

In the STRAW criteria **(figure 2)**, menopause is the center of the staging system and is labeled the zero point (0). There are five stages before the FMP (-5 to -1) and two stages after (+1 to +2). Some stages reflect the Reproductive Interval (-5 to -3) ; Menopausal Transition (-2 to -1); and Post-menopause (+1 to +2). The STRAW criteria define perimenopause (-2 to +1a) as an event that ends 12 months after the FMP [12].

Menopause-Related Symptoms and Complaints

Core symptoms of menopause include vasomotor symptoms, sleep disturbances, psychological changes, and urogenital problems, all of which can impact sexual desire [1,8]. Although menopause is biologically inevitable, the experience of menopause varies widely and is shaped by factors including symptoms, race and ethnicity, social meanings, expectations, self-esteem, life difficulties, and general health [12].

Menopausal symptoms are expected to begin appearing in the age of 50s, but they frequently manifest in the early stages of the menopausal transition, with ethnic differences in both onset and severity. The prevalence of vasomotor symptoms exhibits a greater increase with age, rising from 32% in premenopausal women to 66% in perimenopausal women. Many symptoms, particularly mood swings, fatigue, and difficulty sleeping, are experienced early in the menopausal transition. However, these symptoms are often overlooked and dismissed as unproblematic [1.11].

The occurrence of menopause-related vasomotor symptoms varies from 53% to 80% worldwide. Overweight and obesity, smoking, and lower socioeconomic status are independently associated with a higher likelihood of vasomotor symptoms. Moderate to severe vasomotor symptoms are independently associated with sleep disturbances, poorer concentration, depressive symptoms, impaired psychological and general well-being, and a lower overall quality of life [1,11].

Menopausal symptoms have long been undertreated and underreported. A survey of 4,014 women in the UK in early 2022 showed that 77% of respondents experienced one or more symptoms deemed "very difficult," and 10% had been forced to leave work due to menopausal symptoms [13]. A lack of understanding of the spectrum of menopausal symptoms is a major barrier to seeking medical help. While most women recognize the cessation of menstruation as a sign of menopause, many other symptoms, such as decreased libido, vaginal dryness, headaches, mood swings, palpitations, joint stiffness, decreased muscle mass, fatigue, and weight gain, are often mistaken for other conditions, particularly in groups not receiving treatment [6,13].

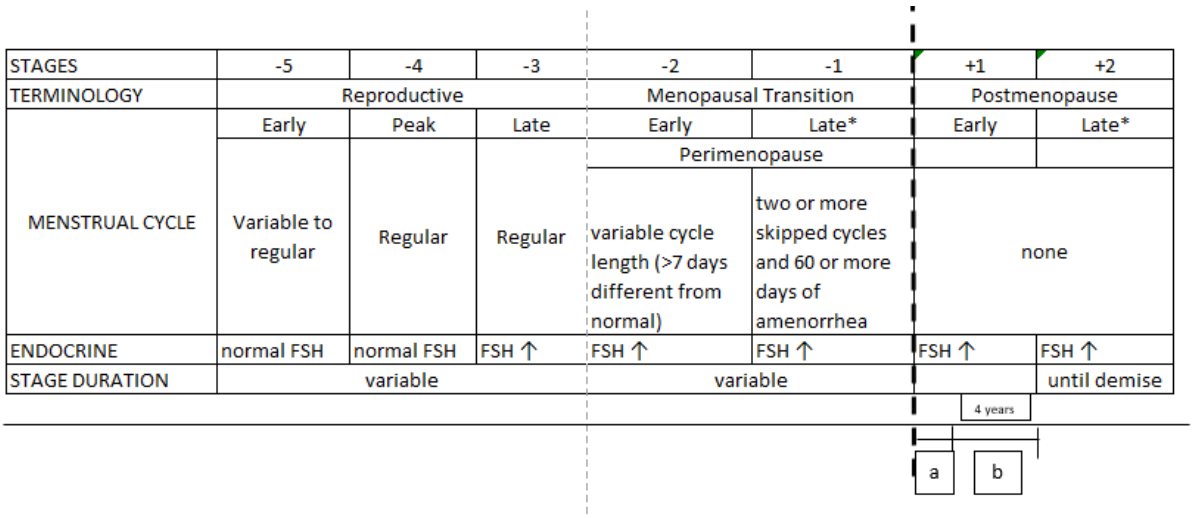

Figure 2. STRAW Scale Stages (adopted from the image in the article by Ambikairajah, et.al., 2022)

Postmenopausal Symptoms

Postmenopausal hypoestrogenism induces epithelial thinning, decreased superficial cell layers, and lowered glycogen production, thus disrupting lactobacillus dominance and increasing vaginal pH to a more alkaline state. Decreased fibroblastic activity and collagen synthesis also trigger microstructural and anatomical changes, such as decreased elasticity, introitus constriction, labia minora regression, and urethral prominence, collectively known as urogenital atrophy, a chronic and progressive condition with a prevalence of approximately 70% [1,11].

Common vulvovaginal symptoms include dryness, irritation, and discharge, which are a major cause of sexual dysfunction. Other urogenital complaints include urinary frequency and urgency, nocturia, incontinence, and recurrent urinary tract infections, all of which are associated with estrogen deficiency in the lower urogenital tissues. These symptoms often appear early in the menopausal transition, are progressive, and tend to recur when treatment is discontinued. Despite this, urogenital menopausal symptoms remain frequently underdiagnosed and undertreated, even with 10–40% of postmenopausal women presenting complaints such as vaginal dryness, vulvovaginal irritation, and dyspareunia [1,5].

Menopause Management

Women face several barriers to seeking help and receiving support related to menopause. Key barriers include a lack of knowledge about the spectrum of menopausal symptoms beyond vasomotor symptoms, attributing symptoms to other causes, the frequent normalization of symptoms and their perceived need for treatment, and stigma, shame, or identity aversion that prevent open discussion of symptoms. Cultural norms within certain ethnic groups also influence responses to menopausal symptoms [6].

Barriers to access and acceptance of hormone replacement therapy (HRT) include limited communication with doctors, especially when FSH test results appear normal. Negative perceptions regarding breast cancer risk, limited information regarding the use, duration, long-term safety, and benefits of HRT exacerbate patient mistrust. Confusing medical terminology and the spread of myths contribute to misinterpretation. Consequently, many women are concerned about potential cancer risks before starting therapy, leading to poor adherence once treatment is prescribed [6,13].

Patients disclose a need for more education about menopause and the hormone replacement therapy (HRT) currently prescribed by their doctors. In the present healthcare environment, time constraints often hinder many doctors from providing thorough counselling and educational support to patients. Therefore, there is a need for additional sources of help and support, one of which is the services provided by pharmacists to menopausal patients [6,9].

To be empowered, women must be informed and listened to. Women have clearly stated that they want their voices heard and their menopause experiences acknowledged and validated. Unfortunately, some women report that their concerns are dismissed, particularly those from minority groups. Key components of empowerment for menopausal women include access to balanced; evidence-based information, preferably before menopause begins (e.g., panels); decision-making tools for symptom management (e.g., decision-making aids), alongside supportive clinicians who engage in shared-decision making and provide treatment when appropriate [5,6].

Menopause Care and Services

Women have a relatively high life expectancy. The trend of increasing life expectancy for women in Indonesia from 1950 to 2100 has a history and projections that are quite positive. Historically, life expectancy has increased substantially, rising from about 40 years in the early 1950s to above 70 years in 2020 **(Figure 3)**. This increase reflects advances in public health, improved nutrition, and access to medical services. This confirms the potential for improving the quality of health and well-being of Indonesian women, although it will still be influenced by social, economic, and health factors in the future. With women's higher life expectancy, healthcare services must be more optimal.

Pharmacists both in clinical and community sectors, must be aware of the differences in medication

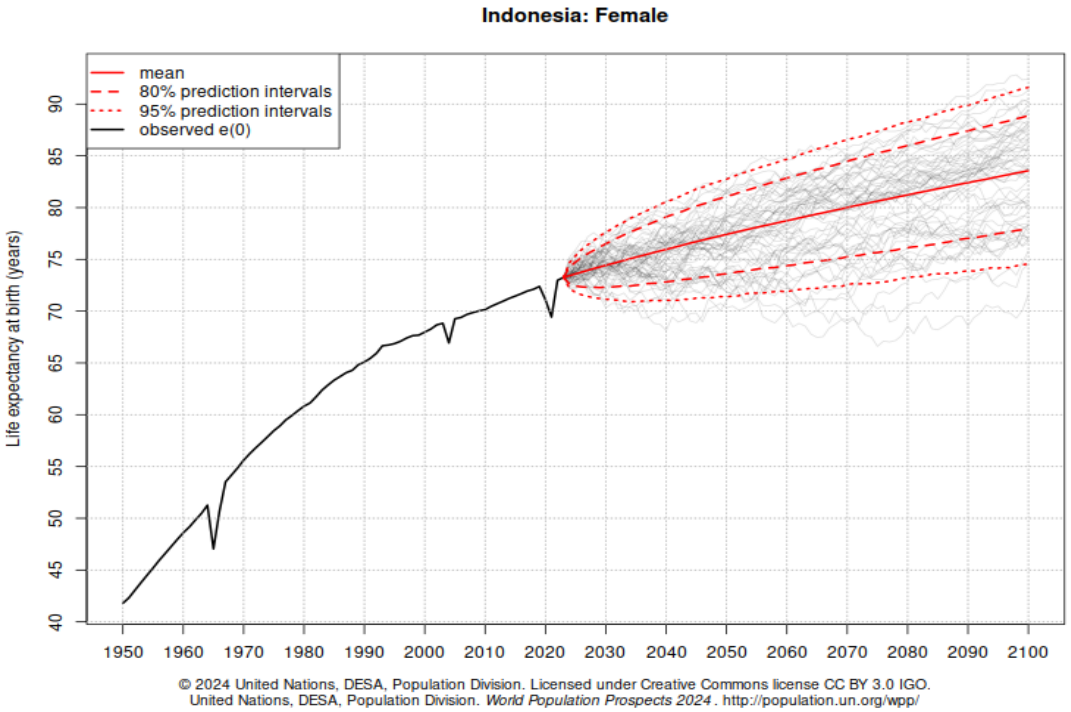

Figure 3. Prediction of Life Expectancy for Women In Indonesia (Source: Population.Un.Org).

safety between men and women. Evidence indicates that 80% of prescription drugs withdrawn from the US market since 1997 pose a disproportionately greater health risk to women compared to men, and there is gender disparity in efficacy of drugs [10,14]. Pharmacists in the healthcare sector must be able to justify the economic and health rationale for incorporating contraceptive use into therapy selection. At least two perspectives exist on the importance of integration of women's health care into formulation management. First, the requirement for safety and efficacy information directed toward women. Second, the evaluation of drug interaction with oral contraceptives or hormone replacement therapy products [10].

Pharmacist-patient counseling programs can focus on patients at greatest risk for negative outcomes related to polypharmacy. These services can promote medication adherence and lower costs, while also preventing adverse drug events and interactions. Counseling services can be provided directly or indirectly via mail, email, or telephone [15,16]. This can provide strategies for maximizing care for menopausal patients. They can be informed about their medications, including dosage schedules and contraindications. This model is also recognized for saving medical human resources and reducing medical costs [17].

The Role of Pharmacists in Pharmaceutical Services and Care for Menopausal Women

Optimizing menopause management with hormone therapy (MHT) requires uniform national guidelines, a standardized record-keeping system, and strong drug supply chain support. Patient adherence can be improved through clear information regarding the type and procedure for MHT use. Health worker training needs to be relevant and applicable, while public education must be evidence-based, accurate, and easily accessible. Effective implementation depends on systematic coordination between agencies and institutions [18].

Community pharmacies, as highly accessible health facilities, provide essential support for peri- and post-menopausal women. Beyond dispensing medications, pharmacy teams contribute to health checks, medication management, and lifestyle

counseling, with evidence showing positive impacts on women's health during reproductive transitions [4]. Pharmacists play a pivotal role in preventing and managing menopausal symptoms by delivering education on hormone replacement therapy (HRT) and related issues, thereby mitigating long-term health risks. In light of evolving perspectives on HRT's safety and efficacy, pharmacists serve as key educators, guiding women in treatment decisions and offering advice on non-pharmacological options for postmenopausal care [8].

Pharmacists can support women during the menopausal transition by providing education on period tracking apps, supplements for joint and bone health, lifestyle modifications, balanced nutrition, and appropriate referral to physicians when symptoms impair quality of life. They may also conduct breast cancer screenings [19]. Regular health checks—including screening for cervical, breast, and colon cancer, as well as monitoring risks such as obesity, diabetes, hypertension, hyperlipidemia, mood disorders, cardiovascular disease, and osteoporosis—are essential throughout menopause [1,11]. Comprehensive postmenopausal care emphasizes lifestyle optimization, encompassing adequate nutrition, physical activity with strength and resistance training, sufficient sleep, stress reduction, moderation of alcohol intake, and smoking cessation [11].

Several observational studies have shown that pharmacist counseling plays a crucial and positive role in improving menopausal status. Improving communication between pharmacists and postmenopausal women is emphasized to improve women's health services. Physicians are often preoccupied with diagnosing and treating patients, making it difficult for them to find time for patient counselling [4]. Given that menopausal women, especially those suffering from severe vasomotor symptoms or anxiety, require reassurance and counseling, pharmacists are the ideal individuals within the healthcare team to provide them with information. Community pharmacists can be instrumental in promoting and offering interventions that improve health outcomes in menopausal women. Non-therapeutic strategies have also resulted in improved health outcomes for these women [20].

Specialist Menopause Pharmacist

The Specialist Menopause Pharmacist (SMP) role was initially piloted in 1995 during a four-month exploratory phase with three objectives. It functioned as a practitioner delivering pharmaceutical support and therapy management to patients and multidisciplinary hospital teams; as an action researcher employing reflective practice to outline potential full-time responsibilities; and as a surveyor conducting confidential questionnaires within local health authorities to capture the perspectives of general practitioners, practice nurses, and community pharmacists regarding the value of the SMP role. [21].

The International Pharmaceutical Federation, in its report entitled "Pharmacists Supporting Women and the Responsible Use of Medicines," noted that pharmacists, recognized as among the most accessible healthcare providers, are ideally situated to provide women with support, advice, and education on health and pharmacotherapy [22]. The use of HRT, or menopausal hormone therapy (MHT), as it is also called, continues to generate debate nearly 20 years after the 2002 Women's Health Initiative (WHI) study, which linked HRT use to a small increased risk of breast cancer and stroke, and media coverage of the findings. Although later studies supported its use among women under 60 or within a decade of menopause, MHT use remains limited [7,11]. A key issue where pharmacists, as pharmaceutical experts, have a crucial role to play is to focus on correcting the misunderstandings regarding hormonal therapy held by clinicians and patients, despite opposing evidence [22].

Women may have limited information about the risks and benefits of different treatments, but many are increasingly active in decision-making around menopausal symptom management. While concerns about safety remain, the way women obtain information has changed. Women now seek reassurance to support their decisions about using menopause treatments in conjunction with other treatments. They are pursuing options beyond conventional treatments and care [6,22].

Pharmacists play a crucial role in identifying drug interactions, providing adherence education, and

supporting pharmacological and non-pharmacological osteoporosis management. However, education alone has proven ineffective in improving adherence. As readily accessible healthcare professionals, community pharmacists are strategically positioned to screen for osteoporosis risk through bone mineral density testing and fall risk assessment. Although research is limited, existing evidence suggests that osteoporosis management involving collaboration between pharmacists and physicians results in better clinical outcomes, particularly for women [22,23].

CONCLUSION

Menopause impacts women multidimensionally, encompassing physical, psychological, and social aspects, with complex symptoms such as vasomotor complaints and urogenital disorders requiring evidence-based interventions and a holistic approach. Pharmacists have a strategic role in providing comprehensive pharmaceutical care through education, counseling, therapy monitoring, and healthy lifestyle promotion, which has been shown to improve patient knowledge, therapy adherence, and prevent long-term complications. This article emphasizes the importance of strengthening the role of pharmacists as partners in multidisciplinary teams, as well as the need for competency enhancement through training and regulatory support. Furthermore, further studies are needed to evaluate the effectiveness of pharmacist-led pharmacy service models, including the development of innovative interventions such as digital services and integrated counseling, to expand access and improve the quality of life for menopausal women across various health systems.

CONFLICT OF INTEREST

The authors have no conflicts of interest regarding this investigation.

ARTIFICAL INTELLIGENCE USAGE

The authors utilized Copilot for language refinement (paraphrasing, improving grammar and sentence structure)

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