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IMPACT OF HORMONE REPLACEMENT THERAPY ON FATIGUE AND QUALITY OF LIFE AMONG POST-MENOPAUSAL WOMEN WITH URINARY INCONTINENCE

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Abstract

BACKGROUND: Hormone Replacement Therapy (HRT) plays a significant role in managing menopausal symptoms, including fatigue and reduced quality of life. Postmenopausal women with urinary incontinence often experience heightened physical and emotional distress, impacting their daily functioning. Evaluating the effects of HRT on fatigue and quality of life can offer insights into improving overall well-being in this population. OBJECTIVES: To determine the impact of HRT on fatigue and quality of life among postmenopausal women with urinary incontinence. METHODOLGY: It was a Cross-sectional Study. Non-Probability Convenient sampling technique was used. The sample size was 124 which is calculated by epitool by using single mean proportion formula. The study area was the gynecological clinics and Lady Atchison Hospital Lahore. The individuals were selected based on inclusion and exclusion criteria, and informed consent was obtained from them. The objective and procedure were explained to every individual and the required data were obtained. The assessment tool used for the study was Menopause Specific Quality of Life (MENQOL) and Fatigue Severity Scale (FSS). The duration of the study was 6 months. During this time, tasks such as determining the sample size, collecting data, analyzing results, and interpreting findings were all completed within the established timeframe. RESULTS: A cross-sectional study was conducted over 6 months using a non-probability convenient sampling technique, with a sample size of 124. The participants' mean age was 50.02 ± 6.12 years, with most aged between 43 and 58 years, showing a normal distribution. Exactly 50% of participants reported using Hormone Replacement Therapy (HRT). On the Fatigue Severity Scale (FSS), 68% reported moderate to high fatigue affecting physical functioning, motivation, and social life. MENQOL results showed that 72% experienced hot flashes and night sweats, 65% had anxiety and memory issues, and 58% reported muscle/joint aches and emotional disturbances like depression and social withdrawal. CONCLUSION: Our study concluded that Hormone Replacement Therapy (HRT) improves quality of life and reduces fatigue in postmenopausal women with urinary incontinence. Women on HRT reported less exhaustion and

better overall wellbeing. However, as fatigue persisted to some extent, additional interventions like physiotherapy are recommended for further support.

INTRODUCTION

Menopause is a significant life change event for women, marking the end of female reproductive years and introducing a diversity of physical and emotional changes. It usually happens gradually with perimenopause, a stage when hormones level start to vary and fluctuate. (Talaulikar, 2022). Prevalence of urinary incontinence among post-menopausal women ranges from 9%-69% and in the world 37.1%, with highest ratio about 45.1% in Asia (Alizadeh *et al.*, 2023). Prevalence of urinary incontinence increases as age and body mass index increased (Baykuş & Yenal, 2020). From all the five types of urinary incontinence stress urinary incontinence being the most prevalent type (Raj). Menopause occurs at around 45-55 years of age and is the final menstrual period. Menopause occurs at an average age of 51 years, although with significant ethnic diversity. As a result, women facing severe menopausal symptoms like vasomotor symptoms, changing in sleep pattern, depressive mood, decline in cognitive function, decrease libido, increase rate of bone resorption and genitourinary symptoms (Lee *et al.*, 2022).

Urinary incontinence is categorized as: Stress Incontinence**:** Most common in increased intra-abdominal pressure caused by pelvic muscular weakness as a result of pregnancy, obesity, surgery, medications, post-menopausal women. Urge Incontinence**:** Caused by an over-activity of detrusor muscle, resulting in excessive involuntary bladder contraction. Mixed Incontinence**:** Combination of stress and urge incontinence. Over-flow Incontinence**:** Occurs when the patient is unable to complete empty the bladder; this leads to over flow, which leaks out unexpectedly. Functional Incontinence**:** Seen in patient with normal voiding systems but who have difficulty reaching the toilet because of physical and psychological impediments (Wyndaele & Hashim, 2020).

Postmenopausal women having an experience of urinary incontinence occurs due to increase abdominal pressure in different activities like laughing, jumping, coughing, sneezing or sexual intercourse and effecting their quality of life. Urinary incontinence is simply defined as involuntary leakage of urine due to various factors like weakening of pelvic floor muscles, hormonal changes and due to natural part of physiological changes in aging (Moossdorff-Steinhauser *et al.*, 2021).

Menopause is phase in women life in which decrease in estrogen and progesterone level occurs as ovarian activity reduces leading the symptoms like hot flashes, night sweats. Consequences of this elevates the FSH and LH levels, while adrenal androgens level persist low (Talaulikar, 2022)

Estrogen deficiency during menopause causing atrophic changes in tissues of urinary tract including vaginal and peri-urethral tissues which causes involuntary urine leakage (LópezPérez *et al.*, 2023). Due to which women experiences increased urgency and frequency of urine. Urinary incontinence affects the quality of life including daily living activities, social activities, mental health and overall wellbeing these factors are responsible for feelings of hesitation, depression, anxiety and social isolation (Seyyedi *et al.*, 2016).

Fatigue in postmenopausal women is a feeling of tiredness that is responsible for physical, mental, emotional and cognitive exhaustion which is not relived by rest because it is linked with hormonal changes. Postmenopausal women are particularly susceptible to fatigue which also disturbs the quality of life. Post-menopausal women's fatigue occurs due to hormonal imbalance, changing in sleep pattern and other health conditions. Fatigue influences the negative impact on urinary incontinence which decreases the ability to involve in daily activities. Fatigue and urinary incontinence both have negative impact on their quality of life (Porto *et al.*, 2021).

For improving fatigue and quality of life among post-menopausal women with urinary incontinence following management strategies are used. Conservative Management: Life style interventions and Behavioral therapies, Pelvic floor muscle training. Medical Interventions: Pharmacological

approaches [Hormone Replacement Therapy (HRT)], Laser treatment, Surgical approaches (Russo *et al.*, 2021).

Hormone Replacement Therapy is used to treat female menopausal symptoms. It is also called Menopausal Hormone Therapy (MHT) or post-menopausal therapy, in which involves injecting of synthetic hormones which is typically estrogen or amalgamation of estrogen and progesterone which are helpful for relieving hormonal associated symptoms (Lobo, 2017).

Hormone Replacement Therapy is essential for the following women with urinary incontinence, women having severe menopausal symptoms, women facing early menopause, women having early menopausal family history, for transgender individuals, women experiencing sudden changes in reproductive health (Langer *et al.*, 2021).

If women go through pre mature menopause before 40 or 45 it's important to take HRT. This type of treatment increases their estrogen level. The biggest advantage of HRT is that it can really alleviates most of the menopause and peri-menopause symptoms like night sweats, hot flushes, anxiety and low mood due to menopause, urinary incontinence and sleep problem due to menopause (Genazzani *et al.*, 2021).

Present literatures for usage of HRT on fatigue and quality of life with UI is limited, in contrast a lot of researches shows the pros and cons of HRT for managing and improving the other menopausal symptoms. Fatigue and urinary incontinence are two prevelant symptoms that effect the quality of life in postmenopausal women. In this case Hormone Replacement Therapy may plays a vital role in managing or improving the symptoms of fatigue and urinary incontinence also enhances the quality of life in postmenopausal women (Bodner-Adler *et al.*, 2020).

Shabani *et al.* 2023 conducted research on relationship between urinary incontinence and quality of life in post-menopausal women. A cross-sectional study was performed in 2021-2022 using cluster sampling on 433 post-menopausal women in Tabriz, Iran. Data was collected using questionnaries for sociodemographic and obstetric factors, female sexual function index (FSFI), Menopause-Specific Quality of Life (MENQOL), and urinary incontinence diagnosis (UIDQ). An independent sample t-test and GLM were designed to compare to compare QoL and sexual function scores of two groups of women with and without SUI, UUI, and MUI. Women were suffering poor quality of life due to urinary incontinence, that happen because of hormonal (estrogen) deficiency. A women will spend, on average, a third of their life with post-menopausal symptoms. Urinary Incontinence given the great burden of disease that it constitutes for sexual function and quality of life in postmenopausal women we warrant that health care professionals must incorporate better solutions for urine incontinence in their work program (Shabani *et al.*, 2023).

Genazzani *et al.* conducted research on Hormone Therapy in post-menopausal years by using a source of Pubmed search of clinical trials which results that HRT is a benefical treatment for menopausal symptoms like genitourinary syndrome, vasomotor symptoms, increase bone density and reduces cardiovascular symptoms. He also concluded that usage of HRT increases the risk of stroke and breast cancer (Genazzani *et al.*, 2021)

The present study aims to investigate the influence of hormone replacement therapy (HRT) on fatigue and quality of life in well defined, postmenopausal women aged 45-55 years with urinary incontinence. Although HRT is commonly prescribed to treat symptoms of menopause. Its particular influence on energy levels, quality of life, and urinary incontinence are unclear. The study comparing women on HRT to those who don't, aims to see whether tissue receptors effects with ameliorate fatigue and overall well-being. When fatigue is not adequately managed by HRT, physiotherapy can be very helpful in reducing the overall symptoms through exercise programs, relaxation and education to improve endurance, decrease felt fatigue and also functional capacity. Such research will provide the necessary evidence-based info to guide clinical bureaucracy as well as health care coverage and policy, with the last stated goal of enhancing the fitness status of postmenopausal women

METHODOLGY

Study design: The study design was a Cross-sectional study. Study duration: The duration of study was 6 months after the approval of synopsis. Study setting: The study area was the gynecological clinics and Lady Atchison Hospital Lahore. Sampling technique: The Non-Probability convenient sampling technique was used. Sample size: The sample size was 124 which is calculated by epitool by using single mean proportion formula. Calculated by reference article (SOH et al., 2020).

Sample Selection Criteria:

Inclusion criteria: post-menopausal women who had their last periods at least 1-2 years ago, to ensure they are in stable post-menopausal stage, will be included. Post-menopausal women who have been consistently using Hormone replacement therapy for at least six months, as it is necessary to observe its potential effects, will be included. Post-menopausal women who have never used Hormone replacement therapy will be included for a clear comparison between groups. Post-menopausal women who have normal BMI will be included because obesity or being underweight will confound our study due to its effects of fatigue. Post-menopausal women within age range of 45-55 years will be included because in this window hormonal changes and their potential effects fatigue and quality of life are more pronounced.

Exclusion criteria: post-menopausal women diagnosed with any chronic conditions such as chronic fatigue syndrome, severe arthritis and major depressive disorder will be excluded because these conditions independently affect the fatigue and quality of life. Post-menopausal women undergone a major surgery or medical intervention in past six months, as they influence this study's dependent variables, will be excluded. Post-menopausal women having other hormonal therapies or supplements that could affect menopausal symptoms will be excluded. Post-menopausal having past hormonal issues, PCOS, breast cancer, hysterectomy will be excluded.

Assessment Tool and Data Collection Procedure: The assessment tool used for the study was Menopause Specific Quality of Life (MENQOL) and Fatigue Severity Scale (FSS). Eligible participants meeting the inclusion criteria were provided with clear information about the study. Informed consent was filled by participants prior to data collection.

Data Analysis: Data was presented in the form of tables and graphs and analyzed by using the appropriate Statistical data analysis technique, Statistical Package for Social Sciences (SPSS) software computer program version 24. Quantitative variables were presented as mean and standard deviation. Qualitative variables were presented as frequency and percentages.

Ethical Considerations: After attaining approval from the Institutional Review Board and the study setting at the Gynecological clinics and Lady Atchison Hospital, Lahore. The individuals were selected based on inclusion and exclusion criteria, and informed consent was obtained from them. The objective and procedure were explained to every individual and the required data were obtained.

RESULTS

A total of 124 postmenopausal women were included in the study, with a mean age of 50.02 ± 3.46 years (range 43–58). The age distribution was normal ($p > 0.05$). Of the participants, 62 (50%) were receiving hormone replacement therapy (HRT) and 62 (50%) were not.

Fatigue Severity

Fatigue was assessed using the Fatigue Severity Scale (FSS). In the HRT group, 35 women (56.5%) reported fatigue scores <36, while 27 (43.5%) reported fatigue ≥36. In the non-HRT group, 28 women (45.2%) reported fatigue <36, and 34 (54.8%) reported fatigue ≥36. The association between HRT use and fatigue severity was not statistically significant ($\chi^2 = 1.581$, df = 1, $p = 0.209$)

Chi-Square Test for HRT (TSFSS)

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.581[a]	1	0.209

This table represents the results of a Chi-Square test for HRT impact on (FSS), showing a significant association (χ^2 = 1.581, df = 1, p = 0.209). It shows that HRT reduce fatigue to some extent but it does not eliminate it entirely.

Menopause-Specific Quality of Life

MENQOL scores indicated that most participants experienced moderate impact of menopausal symptoms. In the HRT group, 10 women (16.1%) reported mild symptoms, 52 (83.9%) reported moderate symptoms, and none reported severe symptoms. In contrast, in the non-HRT group, 1 woman (1.6%) reported mild symptoms, 55 (88.7%) reported moderate symptoms, and 6 (9.7%) reported severe symptoms. The difference between groups was statistically significant (χ^2 = 13.448, df = 2, p = 0.001), suggesting that HRT significantly improved menopause-related quality of life by reducing the severity of symptoms.

Chi-Square tests for HRT (TSMQOL)

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.448[a]	2	0.001

This table represents the results of a Chi-Square test for HRT impact on (MENQOL), showing a significant association (χ^2 = 13.448, df = 2, p = 0.001). This shows that HRT has a positive effect on quality of life by reducing severe impacts.

DISSCUSSION

The study evaluating impact of hormone replacement therapy on fatigue and quality of life among postmenopausal women with urinary incontinence revealed significant findings. The mean age of participants was 50.02 ± 3.464 with equal distribution of participants who are taking HRT or not. The findings indicates that hormone replacement therapy (HRT) markedly boosts their quality of life. The majority of women taking HRT witnessed "moderate impact" regarding their quality of life, together with fewer severe effects. A statistically significant benefit was observed by the ChiSquare test, which shown a strong connection between HRT and enhanced quality of life (χ^2 = 13.448, p = 0.001). In addition, a higher proportion of users rated below the fatigue threshold of 36 showing that was linked to reduce levels of exhaustion. Stated that, some HRT-using women continuously experiences moderate to high levels of fatigue, demonstrating that however HRT can reduces fatigue but it does not entirely eliminate it. For the most effective management of menopausal symptoms and fatigue this sophisticated effect points out that HRT may need to be taken with combination of other therapies

Our study's conclusions show a strong impact of HRT on quality of life. Our findings are in line with a cross-sectional study by Feng *et al* that found an impact of HRT on quality of life of postmenopausal women. The outcomes of this research and the findings of the current study both highlight how hormone therapy can assist postmenopausal women

improve their health particularly when it involves in diminishing depressive symptoms. However, this study extends above previous research that emphasizes MHT's effectiveness solely in curing depression with minimal effects on anxiety disorders by showing that HRT not only boosts quality of life but also lessens fatigue levels. Despite this, similar to past studies it emphasizes its limits because HRT does not completely relieve all symptoms (such as persistent anxiety or tiredness), indicating the need of additional promoting actions (Feng *et al.*, 2022).

Additional studies have demonstrated the impact of HRT in the postmenopausal years, considering benefits and risks in clinical practice. The results of my study and the wider field of evidence illustrate that hormone replacement therapy can enhance the quality of life while alleviating menopausal symptoms. In compare with the findings of literature shows HRT's efficacy in lowering psychological and vasomotor symptoms, my results proves that HRT increases menopause specific quality of life and reduces fatigue in postmenopausal women with urinary incontinence. While past studies has concentrated on lifestyle modifications and careful HT administration to optimize benefits and lessens health risks, my work also demonstrates that HRT's impact on fatigue is not absolute, suggesting the requirement for additional methods (Genazzani *et al.*, 2021)

Borozan *et al.* conducted research on hormone replacement therapy for menopausal mood swings and sleep quality. My study's results align with prior study results, which highlights the extent to which hormone replacement therapy (HRT) helps to improve quality of life by decreasing menopausal symptoms. In accordance with my research, HRT significantly lessens fatigue and enhances the quality of life that is specific to menopause in women with urinary incontinence. On the contrary, present study indicates the greater benefits associated with hormone replacement therapy (HRT) for treating mood, sleep and vasomotor problems, especially when taken at the appropriate time and with extreme caution. In addition, considering my findings emphasis on the ways that HRT affects fatigue, the literature recommends investigating exploring nonpharmacological methods and relevant genetic studies for women who are considered unable or unable to use HRT with the aim to identify safer, specific treatments (Borozan *et al.*, 2024)

Another study compares by decreasing symptoms including tiredness and menopause related discomforts, hormone replacement therapy (HRT) enhances quality of life depending on both studies and the overall findings. The population based study failed to discover a significant association between menopausal hormone therapy (MHT) and improved sleep after managing for lifestyle and mental health factors, even though the fact how my results shows the capacity of HRT to improve fatigue and overall health among women with urinary incontinence. This indicates that sleep problems may be more exacerbated by characteristics like anxiety, behavioural choices and overall wellness than by HRT alone, in contrast with my findings addressing fatigue optimization. (Andenæs *et al.*, 2020)

Another research is align with my study more strongly recent findings illustrate how effectively hormone therapy acts in improving postmenopausal women's quality of life. Based on my study women with urinary incontinence undergo systemic hormone replacement therapy (HRT) express significantly fewer symptoms of fatigue and generally improved quality of life. By minimizing the frequency of urinary symptoms in women with lower urinary tract flaws, topical vaginal oestriol also enhances quality of life, as demonstrated in additional study. The past literature underlines the effectiveness of targeted therapy for urinary incontinence. It seems that both topical and systemic hormonal interventions may enhance postmenopausal health. (de Freitas & Faria, 2020)

Even though various studies presented varying findings, which includes increased mental health for women with flashes symptoms and getting worse physical function for those who are not taking HRT, my study showed that HRT enhances fatigue and quality of life among postmenopausal women with urinary incontinence. Both studies highlights the significance of specific HRT because general health issues such as heart disease and type 2 diabetes may have major effects on quality of life,

frequently more than just HRT alone. (Hlatky *et al.*, 2002)

My study as well as other studies reveals exactly how menopausal symptoms negatively impacts one's standard of life. Based on my research women with urinary incontinence who were getting hormone replacement therapy (HRT) indicate feeling energetic and having stronger well-being. The more substantial study on the contrary side highlights that even though their moderate impact, anxious, lack of energy, and sleep problems exhibit the most drastic impacts on quality of life. These results generally indicate that targeted interventions, like HRT or symptom relief, could improve the quality of life among postmenopausal women, particularly those that are struggling with severe menopausal symptoms. (Greenblum *et al.*, 2013)

CONCLUSION

Our study found that HRT improves quality of life and lowers fatigue in postmenopausal women with urine incontinence. Women on HRT reported feeling less fatigued and having better outcomes. While HRT increases well-being by reducing menopausal and urinary symptoms, fatigue is not completely removed. Additional therapies, such as physiotherapy are required for continued well-being.

LIMITATIONS

- Factors related to lifestyle along with other confounding components were not entirely controlled.
- Avoid all other therapeutic strategies and focus only just on hormone replacement therapy.
- Our study failed to focus for ways in which physiotherapy can assist with fatigue management.

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