Original Article

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Assessment of Sexual Functioning and Its Association with the Quality of Life Among Menopausal Women in Karachi, Pakistan

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Abstract

Background: Menopause is a natural phase in a woman's life, when menstrual periods stop due to hormonal changes. These changes can affect not only physical health but also emotional well-being and sexual functioning, ultimately affecting a woman's overall quality of life. This study aimed to evaluate the association between sexual functioning and quality of life among menopausal women in Pakistan.

Methodology: This cross-sectional study was conducted in five towns of Karachi, Pakistan, from June 2023 to February 2024. The Female Sexual Function Index (FSFI) and the World Health Organization Quality of Life-BREF (WHOQOL-BREF) were employed to assess the sexual functioning of menopausal women and their association with their quality of life.

Results: A total of 390 menopausal women participated in this study. The mean of the total FSFI score was calculated to be 18.58 ± 4.89, suggesting mild to moderate female sexual functioning among the menopausal women. Pearson's correlation analysis revealed significant positive associations between total FSFI scores and all four WHOQOL-BREF domains (Physical Health: r = 0.621; Psychological Health: r = 0.488; Social Relations: r = 0.662; Environment: r = 0.601; all $p < 0.01$). Psychological health showed a notable positive correlation with sexual satisfaction (r = 0.371, $p < 0.01$), and pain during intercourse was negatively associated with physical and psychological health domains.

Conclusion: This study highlighted the importance of incorporating both psychological and sexual well-being into healthcare interventions for Pakistani women undergoing menopause to ensure a better quality of life.

Keywords: Menopause; quality of life; sexual functioning; psychological health; Pakistan

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Introduction

Menopause, with the cessation of menstrual periods owing to a reduction in ovarian function and estrogen production, can occur any time from 45 to 55 years of age (1). Traditionally, physiological changes occurring during menopause have been attributed only to aging; however, the latest studies are more focused on the broader effects, especially on sexual functioning and overall quality of life (1,2). Menopause was historically viewed from a primarily physical standpoint, or focusing on symptom management of hot flashes and itchy night sweats. However, research in the last several decades has shed light on the fact that symptoms of menopause go beyond physical health and can extend to psychological and even sexual health (3). To holistically manage menopausal health, it is important to understand how these changes will alter the quality of life of women.

Hormonal changes associated with menopause profoundly affect sexual functioning, which is a critical part of a person's overall health and life satisfaction. Estrogen reductions are shown to decrease sexual desire and satisfaction and increase discomfort and arousal problems (4, 5). Literature suggests that up to 50 percent of menopausal women may experience sexual dysfunction, including pain, lack of lubrication, and reduced response to orgasm (6, 7). These dysfunctions may contribute to emotional distress as well as to the course of relationships, especially in a marital satisfaction context, so healthcare interventions devoted primarily or at least partially to the physical and psychosocial aspects of this inconvenience are necessary (8). Menopausal women's quality of life (QoL) includes physical, mental, social, and environmental well-being. Generally, symptoms such as hot flashes, mood swings, and sexual issues lead to a decrease

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in their QoL (9, 10). Education, happy marriages, and financial stability may also be considerable factors for QoL. Those who are economically sound and educated experience a better quality of life during menopause (5, 11).

Menopause may create psychological challenges, with hypoactive sexual desire disorder (HSDD) characterized by a lack of interest in sexual activities coupled with sadness. Globally, 12% of postmenopausal women have this condition, and it is associated with a deterioration in QoL (8, 12). The psychological burdens associated with menopausal sexual dysfunction are considered to be associated with menopausal sexual dysfunction, thereby highlighting the need for supportive and comprehensive care strategies. Available data indicate that extending psychosocial support, counselling, and lifestyle interventions can improve QoL outcomes among menopausal women (13). Menopause traditionally has been a time of misunderstanding and stigmatization, predominantly treated with pharmaceuticals for relief of symptoms rather than a holistic approach to the woman's experience. Recent research has revealed the importance of a broader understanding of how menopause affects emotional and psychological states (1, 14). The shift also led to changes in policy, such as health systems advocating for complete menopausal care, including addressing sexual and mental health (15).

Managing menopause goes further in contemporary healthcare than treating physical symptoms alone. Improvements in sexual health as well as QoL may include pharmacological and non-pharmacological interventions, such as hormone replacement therapy (HRT), counselling, and lifestyle changes to lessen some vasomotor and sexual symptoms of menopause (16). Personalized treatment has also demonstrated benefits, such as behavioral therapy and counseling for hypoactive sexual desire and distress, among postmenopausal patients (7).

Sexual partner dynamics may also influence the quality of life of menopausal women. Women in supportive relationships do seem to experience fewer sexual issues and an overall higher QoL throughout the menopausal phase, underlining the importance of relational factors in supporting a 'good' QoL in menopause. (6, 10) Literature suggests that couples therapy or partner-inclusive health discussions could help improve sexual dysfunction and relationship satisfaction and enhance mutual support, which may extend to the menopausal period (5). However, such interventions require baseline information on the sexual functioning of menopausal women and their quality of life, which is limited in Pakistani settings. This study was therefore conducted to assess the sexual functioning of menopausal women and to analyse the association between sexual functioning and the quality of life of menopausal women in Karachi, Pakistan.

Methodology

This cross-sectional study was conducted in the district central of Karachi from June 2023 to February 2024. The district is divided into towns, namely Gulberg, Liaquatabad, New Karachi, Nazimabad, and North Nazimabad. From within 5 towns, an equal number of participants were recruited, based on the catchment areas of the Lady Health Workers assigned for that particular area. This study was aligned with the Declaration of Helsinki, and ethical approval was granted by the Institutional Review Board of Dow University of Health Sciences, Karachi. Informed consent was obtained from participants who had been briefed regarding the purpose, procedures, and participant rights (including the right to withdraw without consequence). The data was anonymized using unique identifiers, and access was restricted to only authorized research team members who were allowed to view the data collected.

Considering the sensitivity of the study topic, data were collected through the Lady Health Workers (LHWs), who are trusted by the local female population. Moreover, due to the unavailability of a complete sampling frame of menopausal women in Karachi, we could not opt for random sample selection and used a convenience sampling technique as a practical and morally acceptable method to recruit participants within the time and resource constraints, while minimizing participant discomfort and ensuring confidentiality. The sample size of 390 was determined using the Yamane simplified formula for proportions: $n = N / (1 + N \cdot e^2)$, where N represents the estimated target population and e represents the margin of error (0.05). Given the absence of a published prevalence estimate for sexual dysfunction specifically among menopausal women in the target districts of Karachi, we applied a conservative prevalence of 50% ($p = 0.50$). Using a 95% confidence level and a 5% margin of error, the minimum required sample size was calculated to be 384. We therefore recruited 390 participants to account for potential incomplete responses, exceeding the minimum required sample. Since sampling was done in five towns in Karachi, the study can be generalized across similar settings in Karachi. Women who were married, post-menopausal, and lived in the selected towns were included in this study, while women who were divorced, widowed, or had serious physical or mental health problems were excluded. Divorced and widowed women were excluded from this study because the Female Sexual Function Index (FSFI) is validated for use among sexually active women in partnered relationships. Since the FSFI assesses domains such as desire, arousal, lubrication, orgasm, satisfaction, and pain within the context of sexual activity over the preceding four weeks, it may not yield valid or interpretable scores for women who are not currently sexually active or partnered. To preserve the psychometric integrity of the tool and ensure the comparability of scores across participants, only currently married women were included

The data collection procedure started after getting ethical approval from the institution. Informed consent was requested in writing. The aims and objectives of the study were clearly briefed to the participants, who willingly became a part of this study. As this study involved gathering information on sexual functioning, which is highly sensitive data, participants

were assured that their data would be kept confidential. Participants were recruited from five towns in Karachi (Gulberg, Liaquatabad, New Karachi, Nazimabad, and North Nazimabad). We used the Urdu versions of the FSFI (Female Sexual Function Index) questionnaire and the WHO Quality of Life-BREF (WHOQOL-BREF) questionnaire. The FSFI is a well-established and widely trusted tool used to evaluate sexual health by looking at six key areas: arousal, lubrication, orgasm, satisfaction, desire, and pain. This tool provides a clear, holistic picture of a participant's sexual functioning. In this work, we administered the FSFI in Urdu to make it comprehensible and reliable to participants, allowing them to answer the questionnaire in their own language. The FSFI helps cover multiple facets of sexual health, which provide a complete and accurate depiction of a person's sexual health (17).

The WHOQOL-BREF is a well-established tool for measuring the quality of life, covering four main areas: physical, psychological, social relationships, and environments. This instrument uses an overall assessment of the menopausal experience, capturing different aspects of life that are important to the menopausal experience. The use of WHOQOL-BREF allows a study to measure quality of life in an integrative fashion, considering the variety of factors that affect women during menopause (4).

The relationship between sexual functioning and quality of life in menopausal women was studied using descriptive statistics, correlation, and inferential statistical methods using SPSS. Descriptive Statistics, including means, standard deviations, frequencies, and percentages, were calculated for the FSFI and WHOQOL scores, respectively. Relationships between FSFI sub-domains (e.g., desire, arousal, and lubrication) and WHOQOL-BREF domains (physical health, psychological well-being, social relations, and environment) were explored using Pearson's correlation.

Results

A total of 390 menopausal women were recruited in this study. The mean age of the participants was 55.76 ± 5.55 years. The Kolmogorov-Smirnov test indicated normality of the data.

Table 1: Mean Score of FSFI and its Domains among Female Sexual Function (n=390)

Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	FSFI
Mean ±SD						
2.78 (0.93)	2.81 (0.85)	3.46 (0.83)	3.30 (1.14)	3.26 (1.20)	3.01 (1.43)	18.58 (4.89)

Table 1 exhibits FSFI (Female Sexual Function Index) scores in various domains. The mean of total FSFI score was calculated to be 18.58 ± 4.89, suggesting mild to moderate female sexual functioning among the menopausal women in Karachi, Pakistan. The total score and sub-scores of the FSFI scale reflected moderate sexual functioning, with the greatest variability in lubrication and orgasm

Table 2: Mean Scores of Quality of Life of Menopausal Women (n=390)

Physical Health	Psychological	Social Relation	Environment
Mean ± SD			
75.55 (21.39)	72.03 (21.45)	68.14 (14.41)	64.32 (18.58)

Table 3: Pearson's correlation between Quality of life and FSFI scores (n=390)

		FSFI Subscales						
		Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	FSFI
Quality of life subscales	Physical Health	.430**	.408**	.545**	.428**	.489**	-.661**	.621**
	Psychological	.372**	.288**	.423**	.359**	.371**	-.436**	.488**
	Social Relations	.348**	.376**	.600**	.561**	.582**	.530**	.662**
	Environment	.499**	.461**	.539**	.414**	.500**	.649**	.601**

**. Correlation is significant at the 0.01 level (2-tailed).

The correlations between Quality-of-Life domains and FSFI subscales were positive and statistically significant. However, the strength of correlation varied across various subscales of FSFI and QoL sub domains. Physical Health correlated strongly, but negatively with Pain (r =- .661) and FSFI total (r = .621), and Social Relations correlated strongly and positively with Lubrication (r = .600) and Satisfaction (r = .582). (Table 3)

Discussion

This study investigated the association between sexual functioning and quality of life among menopausal women in Karachi, Pakistan, and found a significant positive relationship between the two. The mean total FSFI score was found to be below the clinical cutoff score, indicating mild to moderate sexual dysfunction across the sample of 390 menopausal women, consistent with the widely reported decline in sexual health during the menopausal transition.

In our study, among the FSFI subscales, desire and arousal recorded the lowest mean scores, while lubrication was comparatively higher, suggesting that reduced libido and impaired arousal are the predominant dimensions of sexual dysfunction in this population. As with previous literature, this decline in sexual health with menopause is partly due to hormonal changes, such as a reduction in estrogen, a major contributor to sexual dysfunction. Similarly, a study found that the hormonal shifts lead to symptoms such as vaginal dryness, a

reduced libido, and painful intercourse, which all contribute towards decreased sexual satisfaction and functioning amongst menopausal women (9).

The high correlations between QoL and FSFI subscales demonstrate that optimum sexual functioning during menopause will improve the overall quality of life of menopausal women. Pain and the physical and psychological health scores were negatively correlated, indicating that the presence of pain during intercourse may affect the overall physical and psychological health and well-being of the menopausal women. Similar findings were reported in research that physical symptoms, common during menopause, limit daily activities and diminish QoL, particularly when women have low sexual satisfaction, and thus support the present findings (17).

We observed a negative correlation between the Pain subscale and Physical Health. It should be noted that FSFI Pain scores are reverse-coded: higher scores indicate less pain/greater sexual comfort. The negative correlation between Pain and Physical Health ($r = -0.661$) may therefore reflect that women with better physical health reported more sexual activity and consequently greater pain-related awareness or sensitivity, or alternatively, it may reflect a response bias in this culturally sensitive topic area. This unexpected direction of association warrants further investigation in longitudinal studies. In contrast, the positive correlations of the Pain subscale with Social Relations ($r = 0.530$) and Environment ($r = 0.649$) are consistent with the expected direction: women who experience less pain during intercourse tend to report better social relationships and environmental well-being. Consistent with previous work that sexual functioning affects social relations, the social relations domain was positively associated with FSFI subscales of Lubrication and Satisfaction, indicating that menopausal women who do not have problems of reduced lubrication may experience more fulfilling social relations. Similar findings were reported by other authors (8,18), indicating that good sexual health may also manifest as social confidence, improving relationship quality, with women with higher sexual satisfaction being expected to feel connected socially and in intimate relationships. A third critical domain was Psychological Health, because poor sexual satisfaction was associated with greater stress and lower mood, as a study found that psychological health has an important role in shaping sexual well-being and overall life satisfaction (19).

In general, these findings reinforce the relevance of sexual functioning, psychological wellness, as well as socio-demographic factors in promoting QoL of menopausal women. Menopause care that combines sexual health counselling, physical support, and psychological interventions can be an integrated approach, which can help women handle menopause symptoms more effectively and feel better about life during menopause.

Limitations

While this study provides valuable insights, some limitations must be acknowledged. The use of convenience sampling may limit generalizability, as participants were selected from accessible areas rather than randomly sampled. The cross-sectional design restricts causal inference, capturing relationships between variables at a single point in time without tracking changes. Additionally, self-reported data are susceptible to biases, particularly with sensitive information on sexual health, as participants may alter responses to align with social desirability. The findings of this study are applicable specifically to married menopausal women in urban Karachi and should not be generalized to all menopausal women, including divorced or widowed women, who were excluded due to FSFI validation constraints. Despite these limitations, the positivist paradigm of this study was reflected in the use of structured questionnaires, statistical methods and standardized scales to identify generalizable insight about the experiences of menopausal women in Karachi.

Conclusion

This study demonstrates a significant positive association between sexual functioning and quality of life among married menopausal women in Karachi, Pakistan. Women who reported better sexual functioning, particularly in the domains of lubrication, satisfaction, and reduced pain, also reported higher scores across physical, psychological, social, and environmental domains of quality of life (WHOQOL-BREF), with the strongest associations observed for Social Relations and Physical Health. These findings underscore the need for healthcare providers in Pakistan to integrate sexual health assessment and counselling into routine menopausal care, alongside psychological support, to promote holistic well-being during this life stage. The study is limited by its cross-sectional design, convenience sampling, restriction to married women in urban Karachi, and reliance on self-reported data; future research should employ longitudinal designs and probability sampling across diverse menopausal populations.

Disclaimer: AI tools, including ChatGPT and Grammarly, were used in writing this article. ChatGPT was specifically used to construct the overall outline of the article and to verify the data analysis, while Grammarly was used to improve the grammar of this article.

Ethical Approval:

This study was approved by the Institutional Review Board of the Dow University of Health Sciences, Karachi, Pakistan.
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Data Availability: Data supporting the findings are available upon reasonable request.

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Authors' Contribution:
MA: Assisted in designing the study and writing the final draft of the manuscript
SS: Designed the study, collected data, and wrote the first draft of the article
SA: Data collection and data entry
MS: Analysis and interpretation of data and reviewing the final draft of the manuscript
AY: Designed study protocol and assisted in data collection.
All the authors approved the final draft of the manuscript.

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