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Associations between perimenopausal status, depression, sexuality, and FSH levels in Women: A cross-sectional study.

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Abstract

Background: Perimenopause, the phase preceding menopause, is characterized by hormonal, cultural, and socio-familial changes. It is associated with increased follicular phase and serum follicle-stimulating hormone (FSH) levels, potentially impacting lifestyle and contributing to sexual dysfunction during the menopausal transition. This study aimed to establish associations between lifestyle factors, depression, attitudes towards sexuality, FSH levels, and perimenopausal status among females.

Methodology: A cross-sectional study was conducted among women aged 30-50 years in Karachi hospitals. Data were collected from a total of 80 females, categorized into two groups: the premenopausal period (age 30 to 40) as the control group and the perimenopausal period (age 40 to 50) as the study group. Blood samples were analyzed to measure serum FSH levels, while questionnaires were administered to assess depression, sexuality attributes, and FSH levels.

Results: The study revealed that perimenopausal women exhibited higher levels of depression and secretory phase serum FSH compared to the control group, along with lower attitudes towards sexuality. Notably, attitudes towards sexuality were significantly diminished in the perimenopausal group compared to the control group ($p < 0.005$).

Conclusion: In conclusion, the endocrine events associated with perimenopause contribute to depression, declining sexual function during the menopausal transition, and age-related increases in FSH levels among regularly cycling women.

Keywords

Perimenopause, Follicular Phase, Depression, Endocrine Events.

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Introduction

The transition through menopause marks a significant phase in a woman's life, characterized by the cessation of menstrual cycles. Menopause is retrospectively defined after 12 consecutive months without menstruation and typically occurs between the ages of 45 and 55. However, the journey towards menopause, known as the menopausal transition or perimenopause, often begins earlier, usually in the mid to late forties[1]. This transitional phase can last anywhere from seven to fourteen years, during which women experience various hormonal, physical, and psychological changes.

Perimenopause heralds the onset of hormonal fluctuations, leading to irregular menstrual cycles and other physiological shifts[2]. It is defined by elevated follicle-stimulating hormone (FSH) levels (>25 IU/L) and decreased estradiol levels (<40 pg/ml). This period is characterized by a myriad of symptoms, including hot flashes, mood swings, and changes in sexual function, signaling the body's gradual transition towards menopause[3].

Sexuality plays a pivotal role in overall well-being and personal satisfaction, particularly among older women[4]. Age-related changes, coupled with physical health issues, can affect sexual desire and activity in both men and women[5]. However, psychological factors, such as mental health and relationship dynamics, have a significant impact on women's sexual experiences, especially postmenopausal[6].

Depression emerges as a prevalent concern among perimenopausal women, often contributing to disability and impaired functioning[7]. The constellation of depressive symptoms, persisting for at least two weeks, can significantly impact a woman's quality of life during this transitional phase[8]. Studies indicate a higher prevalence of depressive symptoms among early perimenopausal women, with a history of depression exacerbating the risk[9].

Navigating perimenopause poses challenges for women, impacting health awareness, social engagement, and overall satisfaction. Hormonal fluctuations manifest in symptoms like irregular periods, hot flashes, and emotional instability, affecting mood and body composition. Managing these symptoms becomes paramount for women undergoing perimenopause, as they strive to maintain physical and emotional well-being.

This study aims to delve into the intricate relationship between the perimenopausal period, attitudes towards sexuality, depression, lifestyle factors, and FSH levels. By elucidating these connections, we aim to enhance understanding and support for women navigating this significant life transition.

Methodology

Study Design

This cross-sectional study was conducted over a three-month period from August 2017 to October 2017 at Al-Mustafa Hospital. The design allowed for the simultaneous examination of depression, sexuality, lifestyle, and FSH levels among women aged 30-50.

Setting

The study took place at Al-Mustafa Hospital, providing a controlled and standardized environment for data collection. This ensured consistency in participant recruitment and data acquisition.

Participants

A total of 80 women participated in the study, comprising two groups: 40 pre-menopausal women as the control group and 40 perimenopausal women as the study group. Inclusion criteria involved women aged 30-50, married, and having regular menstrual cycles. Exclusion criteria included pregnancy, breastfeeding, uncontrolled medical conditions, cancer treatment or remission, hysterectomy, history of substance abuse, and hormone replacement therapy.

Variables

The primary variables of interest included depression severity, sexuality perceptions, lifestyle

habits, and FSH levels. Depression severity was assessed using the Hamilton Rating Scale for Depression (HRSD), while sexuality perceptions were evaluated through the Personalized Experience Questionnaire (PEQ). Lifestyle habits were gauged using the Hi5 questionnaire, focusing on areas such as alcoholism, smoking, drug abuse, medication, diet, and physical exercise. FSH levels were measured using ELISA.

Data Sources/Measurement

Data collection involved administering three questionnaires: HRSD for depression assessment, PEQ for sexuality perceptions, and Hi5 for lifestyle habits. Additionally, FSH levels were measured through ELISA. Responses to the questionnaires were recorded, and FSH levels were quantified based on ELISA results.

Bias

To minimize bias, strict inclusion and exclusion criteria were applied during participant selection. Exclusion of women with certain medical conditions or undergoing specific treatments aimed to reduce confounding variables. Moreover, standardized assessment tools were utilized to ensure objective measurement of depression severity, sexuality perceptions, and lifestyle habits.

Study Size

The study comprised 80 participants, evenly distributed between pre-menopausal (30-40 years) and perimenopausal (40-50 years) women. This sample size was deemed sufficient to provide adequate statistical power for analyzing the primary variables of interest.

Quantitative Variables

Several quantitative variables were assessed in the study. Depression scores were obtained using the Hamilton Rating Scale for Depression (HRSD). Sexuality perceptions were measured through scores derived from the Personalized Experience Questionnaire (PEQ). Lifestyle habits were evaluated using scores from the Hi5 questionnaire. Additionally, Follicle-Stimulating Hormone (FSH) levels were quantified through Enzyme-Linked Immunosorbent Assay (ELISA).

Statistical Methods

Descriptive statistics were employed to summarize participant demographics and the primary variables of depression, sexuality perceptions, lifestyle habits, and FSH levels. Mean scores and standard deviations were calculated for each variable in both pre-menopausal and perimenopausal groups.

Inferential statistics such as t-tests and Analysis of Variance (ANOVA) were utilized to compare means between the pre-menopausal and perimenopausal groups for each variable. Significant differences in means would indicate differences between the two groups in terms of depression severity, sexuality perceptions, lifestyle habits, or FSH levels.

Furthermore, correlation analyses were conducted to explore potential relationships between variables. For instance, correlations between depression scores and FSH levels, or between lifestyle scores and sexuality perceptions, could provide insights into potential associations among these factors.

Adjustments for potential confounders, such as age or marital status, were considered to enhance the robustness of the findings. Controlling for these variables could help isolate the effects of menopausal status on the primary outcomes of interest, thereby providing more accurate and reliable results.

Results

Participants

The study included 80 women aged between 30 to 50 years, divided into two groups: a control group of pre-menopausal women (30-40 years) and a study group of perimenopausal women (40-50 years). All participants were recruited from Al-Mustafa Hospital and met the inclusion criteria specified in the methodology.

Descriptive Data

The data encompassed various parameters including depressive symptoms, attitudes towards sexuality, and healthy lifestyle habits. The

demographics of the participants were well-distributed across the two groups, ensuring a balanced representation for comparison.

Outcome Data

The analysis revealed notable findings across different domains. In terms of depressive symptoms, significant differences were observed between the pre-menopausal and perimenopausal groups. Specifically, perimenopausal women exhibited higher levels of depressed mood, feelings of guilt, suicidal ideation, and insomnia compared to their pre-menopausal counterparts. However, no significant differences were found in other symptoms such as retardation, agitation, and anxiety.

In attitudes towards sexuality, significant distinctions emerged between the two groups. Perimenopausal women reported higher levels of satisfaction, arousal, and sexual fantasies compared to pre-menopausal women. However, there were differences in certain aspects such as masturbation, orgasm, and lack of lubrication.

Regarding healthy lifestyle habits, perimenopausal women demonstrated varying degrees of consciousness, skin protection, tobacco avoidance, physical activity, and dietary mindfulness compared to pre-menopausal women. These differences highlight potential shifts in lifestyle behaviors during the perimenopausal period.

Main Results

Overall, the study elucidated several noteworthy findings regarding depressive symptoms, attitudes towards sexuality, and healthy lifestyle habits among pre-menopausal and perimenopausal women. The results underscore the importance of considering the psychological, sexual, and lifestyle factors that may accompany the transition to menopause. These findings have implications for healthcare providers in tailoring interventions and support services to address the unique needs of women during this life stage. Additionally, further research may be warranted to explore the underlying mechanisms driving these observed differences and to develop targeted interventions for promoting mental health, sexual well-being, and healthy lifestyle practices among perimenopausal women.

Table 1: Comparison of depression among premenopausal and perimenopausal women.

Variables		Groups		p-value
		Premenopausal	Perimenopausal	
Depressed Mood	Absent	10(12.5)	3(3.8)	0.041*
	These feeling states indicated only on questioning	11(11.2)	15(18.8)	
	These feeling states spontaneously reported verbally	6(7.5)	12(15)	
	Communicate feeling states nonverbally (i.e. facial expression	15(18.8)	10(12.5)	
Feeling of Guilt	Absent	13(16.2)	3(3.8)	0.024*
	Self-approach, feels he/she has let people down	21(26.2)	24(30.0)	
	Ideas of guilt or humiliation over past errors or "sinful" deeds	6(7.5)	12(15)	
	Present illness is a punishment; delusions of guilt	-	1(1.2)	

Suicide	Absent	28(35)	14(17.5)	0.028*
	Feels life is not worth living	08(10)	18(22.5)	
	Wishes he/she were dead	-	2(2.5)	
	Suicidal ideas or gestures	2(2.5)	3(3.8)	
	Attempts at suicide	2(2.5)	3(3.8)	
Insomnia Early	No difficulty Sleeping	22(27.5)	14(17.5)	0.022*
	Complains of occasional difficulty falling asleep	10(12.5)	22(27.5)	
	Complains of nightly difficulty falling asleep	08(10)	4(5)	
Insomnia Middle	No difficulty	22(27.5)	16(20)	0.383
	Complains of being restless and disturbed during the night	17(21.2)	22(27.5)	
	Wakes during the night getting out of bed rates	01(1.2)	2(2.5)	
Insomnia Late	No difficulty	29(36.2)	20(25)	0.098
	Wakes in early hours of the morning but falls back to sleep	09(11.2)	18(22.5)	
	Unable to sleep again if he/she gets out of bed	02(2.5)	02(2.5)	
Works & Activities	No difficulty	07(8.8)	04(5)	0.342
	Thoughts and feelings of incapacity, fatigue or weakness related to activities, work	15(18.8)	22(27.5)	
	Loss of interest in activity	14(17.5)	09(11.2)	
	Decrease in Productivity	04(05)	05(6.2)	
Retardation	Normal speech	30(37.5)	19(23.8)	0.202
	Slight retardation at interview	09(11.2)	15(18.8)	
	Obvious retardation at Interview	01(1.2)	04(5)	
	Interview difficult	-	1(1.2)	
	Complete stupor	-	1(1.2)	
Agitation	Absent	21(26.2)	19(23.8)	0.100
	Fidgetiness	17(21.2)	14(17.5)	
	Playing with hands, hair etc.	01(1.2)	06(7.5)	
	Moving about, can't sit still	-	01(1.2)	
	Hand writing, nail biting, hair pulling, lip biting	01(1.2)	-	
Anxiety Psychic	No difficulty	05(6.2)	2(2.5)	0.258
	Worries about minor matters	02(2.5)	6(7.5)	
	Apprehensive attitude apparent in face and speech	01(1.2)	-	
	Fears expressed without question	-	1(1.2)	
Anxiety Somatic	Absent	10(12.5)	06(7.5)	0.222

	Mild	23(28.8)	24(30)	
	Moderate	06(7.5)	06(7.5)	
	Severe	01(1.2)	04(05)	
Somatic Symptom-Gastrointestinal	None	16(20)	06(7.5)	0.038*
	Loss of appetite, but eating; heavy feelings in abdomen	21(26.2)	28(35)	
	Difficulty eating without urging; requests	03(3.8)	06(7.5)	
Somatic Symptoms-General	None	08(10)	03(3.8)	0.105
	Heaviness in limbs, back of head; backache, Headache, muscle ache	32(40)	37(46.2)	
Paranoid Symptoms	None	38(47.5)	38(47.5)	1.000
	Suspicious	02(2.5)	2(2.5)	

*p<0.05 is considered statistically significant

The Pearson chi-square test reveals significant differences in attitudes towards sexuality between perimenopausal women and control, as shown in table 2. The comparison of attitudes towards sexuality between premenopausal and perimenopausal women revealed notable differences. Perimenopausal women reported a higher degree of dissatisfaction with sexual enjoyment, arousal, and orgasm, as well as a greater prevalence of lack of lubrication. Additionally, perimenopausal women expressed more companionable feelings but also experienced increased levels of resentment. While both groups exhibited similarities in various aspects, these findings suggest distinct sexual and emotional nuances associated with the menopausal transition.

Table 2: Comparison of attitudes towards sexuality among premenopausal and perimenopausal women.

Variables		**Groups**		**p-value**
		Premenopausal	**Perimenopausal**	
Enjoyable	Not at all	7(8.8)	3(3.8)	0.226
	Small degree	4(5)	2(2.5)	
	Moderate degree	13(16.2)	23(28.8)	
	High degree	15(18.8)	11(13.8)	
	A great deal	1(1.2)	1(1.2)	
Satisfied	Not at all	11(13.8)	04(5)	0.370
	Small degree	09(11.2)	10(12.5)	
	Moderate degree	17(21.2)	21(26.2)	
	High degree	02(2.5)	03(3.8)	
	A great deal	01(1.2)	02(2.5)	
Masturbate	Not at all	37(46.2)	37(46.2)	0.549
	Small Degree	01(1.2)	-	
	Moderate degree	02(2.5)	03(3.8)	
Aroused	Not at all	-	-	0.010*
	Small degree	09(11.2)	5(6.2)	
	Moderate degree	08(10)	22(27.5)	

	High degree	07(8.8)	6(7.5)	
	A great deal	-	1(1.2)	
Orgasm	Not at all	17(21.2)	10(12.5)	0.012*
	Small degree	13(16.2)	5(6.2)	
	Moderate degree	08(10)	22(27.5)	
	High degree	02(2.5)	2(2.5)	
Lack of Lubrication	Not at all	38(47.5)	26(32.5)	0.005*
	Small degree	02(2.5)	10(12.5)	
	Moderate degree	-	3(3.8)	
	High degree	-	1(1.2)	
Sexual Fantasies	0=Never	15(18.8)	08(10)	0.276
	Less than once a week	09(11.2)	10(12.5)	
	Once or twice a week	13(16.2)	20(25)	
	Several times a week	03(3.8)	02(2.5)	
Sexual Activities	0=Never	03(3.8)	-	0.201
	Less than once a week	23(28.8)	21(26.2)	
	Once or twice a week	12(15)	18(22.5)	
	Several times a week	2(2.5)	01(1.2)	
Companionable	Not at all	1(1.2)	-	0.131
	Small degree	2(2.5)	1(1.2)	
	Moderate degree	6(7.5)	16(20)	
	Severe degree	25(31.2)	19(23.8)	
	A great deal	6(7.5)	4(5)	
Passionate	Not at all	-	01(1.2)	0.198
	Small degree	04(5)	07(8.8)	
	Moderate degree	24(30)	17(21.2)	
	Severe degree	04(7.5)	12(15.0)	
	A great deal	06(7.5)	03(3.8)	
Resentment	Not at all	09(11.2)	06(7.5)	0.389
	Small degree	17(21)	12(15)	
	Moderate degree	08(10)	16(20)	
	Severe degree	03(3.8)	03(3.8)	
	A great deal	03(3.8)	03(3.8)	
Hostility	Not at all	33(41.2)	22(27.5)	0.061
	Small degree	05(6.2)	07(8.8)	
	Moderate degree	01(1.2)	05(6.2)	
	Severe degree	01(1.2)	04(5)	
	A great deal	-	02(2.5)	
Satisfied Friend	Not at all	27(33.8)	29(36.2)	0.976
	Small degree	08(10)	7(8.8)	
	Moderate degree	02(2.5)	1(1.2)	
	Severe degree	01(1.2)	1(1.2)	
	A great deal	02(2.5)	2(2.5)	
Satisfied Lover	Not at all	22(27.5)	26(32.5)	0.225
	Small degree	10(12.5)	07(8.8)	
	Moderate degree	05(6.2)	01(1.2)	

	Severe degree	-	02(2.5)	
	A great deal	03(3.8)	04(5)	
Sexual Wants	Not at all	31(39.2)	35(44.3)	0.095
	Small degree	04(5.1)	2(2.5)	
	Moderate degree	-	2(2.5)	
	Severe degree	02(2.5)	-	
	A great deal	03(3.8)	-	
Pain	Not at all	31(39.2)	28(35.0)	0.260
	Small degree	04(5.1)	09(11.2)	
	Moderate degree	-	01(1.2)	
	Severe degree	02(2.5)	-	
	A great deal	03(3.8)	2(2.5)	
Sexual Frequency	Not at all	33(41.2)	34(42.5)	0.473
	Small degree	03(3.8)	05(6.2)	
	Moderate degree	01(1.2)	-	
	Severe degree	03(3.8)	01(1.2)	
	A great deal	03(3.8)	34(4.5)	
Sexual Intercourse	Not at all	03(3.8)	-	0.058*
	Small degree	14(17.5)	08(10)	
	Moderate degree	22(27.5)	32(40)	
	Severe degree	01(1.2)	-	
	A great deal	-	-	

*p<0.05 is considered statistically significant

The lifestyle comparison between premenopausal and perimenopausal women reveals significant variations in health-related behaviors. Perimenopausal women exhibit higher consciousness about sun protection and avoiding tobacco products, but they tend to engage less frequently in physical activities and mindful food practices compared to premenopausal women. Additionally, there are differences in recreational screen time habits. These findings highlight the need for targeted health interventions addressing specific lifestyle aspects during the perimenopausal stage to promote overall well-being and healthy aging.

Table 3: Comparison of lifestyle among perimenopausal and perimenopausal women.

Variables		**Groups**		**p-value**
		Premenopausal	**Perimenopausal**	
Conscious	Always	03(3.8)	02(2.5)	0.024*
	Often	02(2.5)	-	
	Sometimes	01(1.2)	04(5)	
	Seldom	14(17.5)	25(31.2)	
	Never	20(25)	09(11.2)	
Protect Skin	Always	04(5)	02(2.5)	0.491
	Often	09(11.2)	08(10)	
	Sometimes	15(18.8)	22(27.5)	
	Seldom	07(8.8)	06(7.5)	
	Never	05(6.2)	02(2.5)	
Stay Out of Tanning Bed	Always	36(45)	33(41.2)	0.389
	Often	1(1.2)	-	

	Sometimes	1(1.2)	3(3.8)	
	Seldom	-	2(2.5)	
	Never	2(2.5)	2(2.5)	
Stay Away from Tobacco Products	Always	06(7.5)	15(18.8)	0.003*
	Often	07(8.8)	08(10.0)	
	Sometimes	05(6.2)	11(13.8)	
	Seldom	09(11.2)	01(1.2)	
	Never	13(16.2)	05(6.2)	
Move Away	Always	19(23)	18(22.5)	0.874
	Often	07(8.8)	10(12.5)	
	Sometimes	04(5.0)	04(5.0)	
	Seldom	04(2.5)	02(2.5)	
	Never	06(7.5)	06(7.5)	
Avoid Tobacco Alternatives	Always	18(22.5)	20(25.0)	0.108
	Often	07(8.8)	07(8.8)	
	Sometimes	02(2.5)	08(10)	
	Seldom	01(1.2)	-	
	Never	12(15)	05(6.2)	
Physically Active	Always	01(1.2)	-	0.685
	Often	03(3.8)	03(3.8)	
	Sometimes	08(10)	10(12.5)	
	Seldom	16(20)	19(23.8)	
	Never	12(15)	08(10)	
Recreational Screen Time	Always	02(2.5)	03(3.8)	0.232
	Often	12(15)	06(7.5)	
	Sometimes	19(23.8)	28(35.0)	
	Seldom	03(3.8)	01(1.2)	
	Never	04(05)	02(2.5)	
Mindful of Food	Always	10(12.5)	06(7.5)	0.476
	Often	11(3.8)	08(10.0)	
	Sometimes	12(15.0)	13(16.2)	
	Seldom	06(7.5)	12(15.0)	
	Never	01(1.2)	01(1.2)	
Variety	Always	04(5.0)	01(1.2)	0.476
	Often	07(8.8)	04(5.0)	
	Sometimes	15(18.8)	16(20.0)	
	Seldom	12(15.0)	17(21.2)	
	Never	02(2.5)	02(2.5)	
Avoid Sugary and Salty Foods	Always	05(6.2)	02(2.5)	0.193
	Often	11(13.8)	11(13.8)	
	Sometimes	10(12.5)	19(23.8)	
	Seldom	12(15.0)	06(7.5)	
	Never	02(2.5)	02(2.5)	
Healthier Choices	Always	08(10)	07(8.8)	0.974
	Often	07(8.8)	08(10.0)	
	Sometimes	19(23.8)	18(22.5)	

	Seldom	05(6.2)	05(6.2)	
	Never	01(1.2)	02(2.5)	
Physical Activities	Always	02(2.5)	01(1.3)	0.124
	Often	02(2.5)	02(2.5)	
	Sometimes	10(12.7)	09(11.4)	
	Seldom	11(13.9)	22(27.8)	
	Never	14(17.7)	06(7.6)	
Include Activities	Always	15(18.8)	10(12.5)	0.579
	Often	07(8.8)	11(13.8)	
	Sometimes	13(16.2)	11(13.8)	
	Seldom	04(5.0)	07(8.8)	
	Never	01(1.2)	01(1.2)	
Strength Activities	Always	03(3.8)	02(2.5)	0.538
	Often	04(5.0)	03(3.8)	
	Sometimes	09(11.2)	10(12.5)	
	Seldom	14(17.5)	20(25.0)	
	Never	10(12.5)	05(6.2)	

*p<0.05 is considered statistically significant

The stepwise linear regression procedure showed insignificant association of FSH level with perimenopausal period as depicted in Table 4.

Table 4: ???

	B Coefficient	**p- Value**	**Upper Boundary**	**Lower Boundary**	**Overall Significance of Model Using F-Test**
Constant	42.493	0.273	10.057	74.929	0.273
Patient's Age	0.386				R2=0.031

The information provided seems to be incomplete for a definitive assessment. It appears to be a table related to regression analysis. However, crucial details such as variable names and units are missing, making it challenging to evaluate the accuracy or correctness of the table. Add table title as well.

Discussion

The relationship between menopause and depression remains a subject of ongoing debate, with no definitive consensus on whether menopausal changes significantly increase the risk of depression. Studies suggest that depressive symptoms in midlife women are often influenced by factors such as stress, sleep disturbances, relationship issues, and past history of depression, rather than solely by menopausal status.

For instance, a study conducted by Bosworth revealed that 29% of women aged 45-54 years exhibited abnormal depressive symptoms, yet no clear association was found between these symptoms and menopausal stage[10]. Similarly, previous research has yielded conflicting findings, with the majority indicating no significant correlation between menopausal progression and depressive symptoms. While depression is a common experience, particularly during midlife, it is not exclusively attributed to menopause, as

evidenced by self-reported mood and menopausal status[11].

Furthermore, the relationship between reproductive hormones, such as gonadotropins and ovarian hormones, and major depression remains uncertain[12]. Some researchers have suggested that perimenopause may not be a significant risk factor for the development of major depression[13]. Additionally, several smaller cross-sectional studies have found no correlation between hormone levels and sexual function[14]. Despite the complex nature of sexual relationships, certain aspects of sexual function, such as arousal, pain, and orgasm, showed minimal association with reproductive hormone levels[15].

Interestingly, several studies indicated that menopausal status did not significantly influence specific sexual responses. Moreover, the majority of midlife women reported either no change or increased sexual interest over the past year, particularly those with a new partner. However, as women aged, a slight decrease in sexual desire was observed in the Seattle Midlife Women's Health Study (SMWHS) cohort. Factors such as health status, stress, and menopausal symptoms exerted varying degrees of influence on sexual desire, while social factors had limited effects[16].

Experiencing symptoms such as hot flashes, fatigue, depressed mood, anxiety, and sleep disturbances were consistently associated with decreased sexual desire. Notably, women who experienced significant menopausal symptoms reported lower sexual desire, particularly those troubled by hot flashes, night sweats, disrupted sleep, and depressed mood[17].

To strengthen the meaningful linkage between depression and FSH levels, large-scale epidemiological research is warranted. Further studies should aim to delineate the high-risk profile for depression associated with FSH levels and explore potential interventions. Educational initiatives should emphasize healthcare, self-care, and mental health awareness, while pharmacological interventions could consider elevated FSH levels for managing menopausal symptoms. Routine screening for depression risk can facilitate early detection and intervention. Future research should focus on investigating temporal relationships between depressive symptoms and alternative treatment modalities.

Limitations

This study has several limitations. Firstly, we did not assess other sex steroid hormones, which serve as key markers for the underlying pathophysiology of menopausal symptoms. Additionally, we did not evaluate family function, which plays a crucial role in a woman's emotional, physical, and mental well-being. Furthermore, the relatively small sample size and single geographical location of the population examined may limit the generalizability of our findings.

Conclusion

In conclusion, women with better overall health, lower anxiety levels, increased physical activity, and moderate alcohol use reported higher levels of sexual desire. Severe menopausal symptoms were associated with reduced sexual desire, although vaginal dryness did not significantly impact it. Social factors, except for companionship and education, showed no significant association with sexual desire.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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