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ORIGINAL RESEARCH

Genitourinary Syndrome of the Menopause in Jordanian Women: A Cross-Sectional Study in a Tertiary Hospital in Jordan

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Objective: This study aimed to assess the prevalence of genitourinary syndrome of the menopause (GSM) signs and symptoms and their severity in postmenopausal Jordanian women attending a tertiary care hospital in Jordan.

Methodology: A cross-sectional study was conducted on women with medical records at the University of Jordan Hospital complaining of symptoms related to the GSM. The participants were contacted by phone, briefed about the study, and asked if they would like to enroll. The study included demographic questions and validated assessments of Urinary Distress Inventory-6 (UDI-6) and Vulvar Disease Quality of Life Index (VQLI). Differences in the mean scores were assessed based on data normality and association assessment was performed using Pearson's chi-square test.

Results: GSM was reported by 84.9% of 325 postmenopausal women enrolled in the study with an average of 5.1 symptoms per person. Most of the reported urinary symptoms were stress urinary incontinence (54.8%), followed by urge incontinence (48.6%). Furthermore, most reported genital complaints were vulva itching and/or burning sensations (41.2%) and vaginal discharge (40.3%). GSM interfered with the participants' sexual activity in 44% of the population studied. Smoking was associated with higher UDI-6 scores ($p = 0.045$), and with stress urinary incontinence (1.74 versus 2.19; $p = 0.004$) and painful intercourse (1.66 versus 2.27; $p = 0.011$). Furthermore, high BMI was associated with higher UDI-6 and VQDL1 scores ($p = 0.029$ and $p = 0.043$). Dysuria was higher ($p = 0.007$) in women with shorter years of postmenopause (5 years or less), whereas difficulty in emptying the bladder and GSM interference with sexual activity scores were higher in women who had been postmenopausal for more than 5 years ($p = 0.041$, $p = 0.053$).

Conclusion: The present study showed that a high percentage of postmenopausal Jordanian women developed GSM, with several symptoms per person. Furthermore, the severity of GSM interfered with sexual activity. Smoking and obesity were associated with overall GSM symptoms in Jordanian women.

Keywords: dyspareunia, GSM, urinary incontinence, vaginal dryness

Introduction

Menopause is defined as cessation of menstrual cycles for 12 months or more due to a hypoestrogenic state.[1] This hypoestrogenic state leads to structural and functional changes in the lining tissue of the vulva, vagina, urethra and bladder. Such changes contribute to a group of symptoms, including vasomotor symptoms (hot flushes), vulvovaginal atrophy, sleep difficulties, and mood swings.[2] In 2014, the term "genitourinary syndrome of menopause (GSM)" was selected by the International Society for the Study of Women's Sexual Health and the North American Menopause Society to include the genital and urinary symptoms because the vulvovaginal atrophy does not sufficiently address urinary symptoms.[3]

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In general, GSM encompasses genital, sexual, and urinary signs and symptoms. The genital signs and symptoms include vaginal dryness, pruritus vulvae, pale vaginal mucosa, labial shrinking, labial and vulvar atrophy.[3] The urinary symptoms include frequency of urination, urinary urgency, urine incontinence, and stress urinary incontinence. Moreover, the above symptoms extend their effect on sexual function-related symptoms. These symptoms include loss of libido, lack of lubrication, dyspareunia, and dysorgasmia.[4] Finally, pelvic organ prolapse is also related to GSM.[5]

However, GSM is composed of symptoms that affect not only postmenopausal women, but also pre- and perimenopausal women.[6–8] Due to hypoestrogenic state, 15% of premenopausal women may have GSM-like symptoms.[5,9] Although GSM has a greater impact on quality of life, it is still underreported, underdiagnosed, and undertreated in women with menopause.[5,8–11] The main reasons for the latter are that women's unwillingness to report them due to embarrassment or thinking that these GSM symptoms are typical due to aging.

The prevalence of GSM in Spanish and French postmenopausal women was 70.1% and 68%.[10,12] In the United Kingdom, 50% of postmenopausal women complained of urogenital symptoms,[13] and 30% of European women reported symptoms related to urogenital atrophy.[14] On the other hand, an extensive study in China included 4063 women with 45% of whom were postmenopausal revealed that urogenital symptoms among midlife women are common, frequently combined with sexual dysfunction, and postmenopausal women presented more prevalent and severe menopausal symptoms.[15] In another similar study from China, revealed that the risk factors associated with GSM included maternal age and menopause.[16] Other studies reported that high body mass index is associated with GSM,[8,11,17] and hysterectomy can also increase the risk of GSM.[18]

Despite growing research on GSM and its implications for quality of life and treatment options, GSM has not yet been assessed in Jordan. No studies have evaluated urinary, genital, and sexual symptoms as a combined GSM. Several studies showed the prevalence and management of urinary incontinence and stress urinary incontinence, but without association with menopause.[19–22] Other studies reported the age of natural menopause among Jordanian women with reference to vasomotor, genital symptoms, and BMI.[23] Since cultural and social stigma may limit Jordanian women from expressing or discussing genital or sexual symptoms, which could lead to underreporting of these concerns, this study was conducted in the GSM context, which would help women to express their symptoms better. Furthermore, this study aimed to introduce GSM as an essential element in the Jordanian healthcare system to avoid the long-term risks and complications that may severely compromise the quality of life and sexuality of Jordanian women.[9] Therefore, this study aimed to assess the prevalence and severity of GSM symptoms among postmenopausal Jordanian women attending a tertiary hospital in Jordan.

Method

Study Design, Population, and Sample Size

This is a questionnaire-based cross-sectional study conducted from January to March 2025. Our study population consisted of women who visited the University of Jordan Hospital clinics complaining of at least one genitourinary sign and symptom. However, GSM diagnosis is based on at least two symptoms or one symptom and one sign are present) by a consultant urogynecologist using the International Society for the Study of Women's Sexual Health and the North American Menopause Society. The study sample included postmenopausal women defined by being amenorrheic for 12 months or more and lost their ovarian follicular activity, and the age of menopause was above 40. Those who were not menopausal or under 40 years of age at the time of menopause, or under hormonal replacement therapy, were excluded.

The study was conducted in accordance with the guidelines of the Declaration of Helsinki and was approved (#10/2024/2794) by the Institutional Review Board of Jordan University Hospital. No identifying information was obtained, and all collected data were solely used for statistical analysis.

The sample size was calculated based on the assumption that the prevalence of any GSM symptom was up to 50%, with 90% confidence and a 5% margin of error. A total of 273 women with menopause were required to establish the sample size.

Data Collection Tool and Process

Based on the medical records at Jordan University Hospital, women were contacted by phone. After giving a briefing on the study, including its content and significance, and obtaining participant consent, each woman completed the questionnaires over the phone. Women could withdraw from the questionnaire at any time.

The questionnaire consisted of 24 items that assessed the age of menopause, urinary and vaginal symptoms, and their impact on women's quality of life, as well as general demographics. The survey consisted of four sections, including general demographics, such as age, educational background, employment status, monthly income, marital status, smoking, body mass index (BMI), and whether they lived alone or with a partner/family (8 questions). Then, they were asked about the age of menopause (1 question). The study assessed urinary symptoms in patients using validated Arabic version of the Urogenital Distress Inventory (UDI-6), which has demonstrated good reliability and validity in Arabic-speaking populations.[24,25] UDI-6 questionnaire involved 6 question that evaluates frequency of urination, urinary incontinence, stress urinary incontinence, urge urinary incontinence, difficulty emptying the bladder, and pain or discomfort in the lower abdominal or genital area.[26] Finally, the study assessed the vulvar and genital symptoms and their impact on quality of life using a validated Vulvar Disease Quality of Life Index (VQLI).[27] As no validated Arabic version was available, the questionnaire was translated using a standardized forward–backward translation process conducted by bilingual physicians. The VQLI consists of 8 questions about vaginal itching/burning sensation, dysuria, dyspareunia, and vaginal discharge, and the effect of these symptoms on sleep, choice of clothing (underwear, jeans), ability to concentrate on work or study, and sexual desire in the previous month.[27] Additionally, one of the vasomotor symptoms, heat intolerance, was added to the questionnaire as a relative control. GSM as well as heat intolerance were graded according to severity: 0, no symptoms; 1, mild; 2, moderate; and 3, severe. The total scores of VQLI (8 questions times 3) and UDI-6 (6 questions times 3) were 24 and 18, respectively. The questionnaires were administered via telephone interviews, during which the physicians explained each item to ensure participants' understanding and accurate responses. Each interview lasted 30 to 45 minutes.

Data Analysis

The data was analyzed using the Statistical Package for the Social Sciences program, version 27. Descriptive analyses were conducted to determine the median or mean values for continuous variables, depending on the data's normality, and the proportions for categorical variables. Total scores for the VQLI and UDI-6 were calculated for each subject. For each symptom, frequency and percentages for each severity score were calculated. Severity scores for each symptom were calculated, excluding the "no-symptom" or "zero" score, and normality was assessed. Depending on the data's normality, either the Student's *t*-test or the Mann–Whitney test was applied between two groups, or ANOVA for means or the non-parametric Kruskal–Wallis test for medians was used to compare quantitative variables among three or more groups. For categorical variables, Pearson's chi-square test was used. A p-value <0.05 was significant.

Results

Demographic Characteristics

A total of 325 postmenopausal women were enrolled in the study, with a mean age of 58.3 (± 6.2) years and a menopausal age of 49.8 (± 3.5) years (Table 1). Most of the women (37.8%) in the study were in the 55–59 age group, and the age of menopause was between 50 and 54 years. The vast majority (84%) of the studied population were non-smokers, overweight to obese (81.5%), married (76.6%), living with their husbands (74.7%), had a college education (66.2%), and were employed or retired (51.3%).

GSM and Vasomotor Symptoms

GSM (any of the two symptoms, or one sign and one symptom) was reported by 84.9% of the studied population, compared to 55.7% for heat intolerance, as one of the vasomotor symptoms, with an average of 5.1 GSM symptoms per person. Furthermore, the prevalence of any UDI-6 was 100% compared to 84% for VQLI (Table 2), with a high

Table 1 Basic Demographic Characteristics of the Study Participants

Demographic Characteristic	Number	Percent %
Age Group		
45-49	5	1.5
50-54	87	26.8
55-59	123	37.8
60-64	58	17.8
≥ 65	52	16.0
Age at menopause (years)		
40-44	20	6.2
45-49	102	31.4
50-54	178	54.8
≥ 55	25	7.7
Body mass index (kg/m^2)		
<18.5 (underweight)	1	0.3
18.5–24.9 (normal)	59	18.2
25–29.9 (overweight)	133	40.9
30-34.9 (obese class I)	86	26.5
35 and above (obese class II and III)	46	14.2
Marital status		
Single	14	4.3
Married	249	76.6
Divorced	13	4.0
Widowed	49	15.1
Occupational status		
Employed	45	13.8
Retired	125	38.5
Unemployed	155	47.7
Educational Level		
Illiterate	10	3.1
Primary/ Middle school	20	6.2
High school	80	24.6
Bachelor	98	30.2
Diploma	85	26.2
High Degrees	32	9.8

(*Continued*)

Table 1 (Continued).

Demographic Characteristic	Number	Percent %
Family Economic Status (JD)		
< 500	103	31.7
500-1000	159	48.9
>1000	63	19.4
Place of living		
North	21	6.5
Irbid	5	23.8
Mafraq	4	19.0
Jerash	7	33.3
Ajloun	5	23.8
Central	301	92.6
Amman	244	79.8
Zarqa	25	9.4
Balqa	25	7.8
Madaba	7	3.0
South	3	0.9
Karak	1	33.3
Tafilah	1	33.3
Maan	1	33.3
Housing Status		
Rented	64	19.7
Owned	261	80.3
Living with		
Husband	42	12.9
Husband and children	201	61.8
Children	50	15.4
Parents	10	3.1
Alone	22	6.8
Smoking		
Yes	52	16.0
No	273	84.0

Table 2 Description of the Vulvar Disease Quality of Life Index (VQLI) and Urinary Distress Inventory (UDI-6) Scores in Jordanian Postmenopausal Women

Parameter	VQLI*	UDI-6*
Subjects (n)	325	325
Mean (95% CI)**	4.60 (4.15–5.06)	6.04 (5.63–6.45)
Median score (IQR)[†]	4.00 (6)	5.00 (6)
Zero score Frequency (n (%))	52 (16%)	0 (0%)
Score at 95% Frequency	12	12
Range	0-21	1-17

Notes: *The total scores of VQLI (8 questions times 3) and UDI-6 (6 questions times 3) were 24 and 18, respectively. ** confidence interval. [†] Interquartile range.

correlation between the two scales (r = 0.504, p < 0.0001). The medians of VQDLI and UDI-6 scores were 4.0 and 5.0, respectively (Table 2).

Regarding single GSM, some urinary symptoms were comparable in prevalence (55.7%) and mean severity score to heat intolerance (mean score, 1.98); however, the prevalence and severity scores for genital symptoms were lower than those for heat intolerance (Table 3). The most reported urinary symptoms were stress urinary incontinence (54.8%) with a mean score of 1.82, urge incontinence (48.6%) with a mean score of 1.99, and urinary incontinence (53.5%) with a mean score of 1.58 (Table 3). In terms of frequency of urination, 61.8% reported 3 to 6 episodes of micturition per day, followed by 31.7% reported more than 6 episodes per day, and only 6.5% reported less than 3 episodes per day.

Furthermore, most reported genital complaints were itching and/or burning sensations in the vulva (41.2%) with a mean score of 1.63 and vaginal discharge (40.3%) with a mean score of 1.45 (Table 4). Pelvic and/or genital pain or discomfort was less prevalent (32%) in the studied group, with a mean score of 1.70. On the other hand, dysuria (15.1%)

Table 3 Prevalence and Severity Scores of Selected GSM Symptoms Using the Urinary Distress Inventory (UDI-6) in Jordanian Postmenopausal Women Compared to One Vasomotor Symptom

GSM	Severity								Total	
	No Symptoms (0 Point)		Mild (1 Point)		Moderate (2 Points)		Severe (3 Points)		Mean (SE)[†]	%
	n	%	n	%	n	%	n	%		
Urine leakage related to urgency	167	51.4	56	17.2	47	14.5	55	16.9	1.99 (0.07)	48.6
Urine leakage related to physical activity	147	45.2	76	23.4	58	17.8	20	6.2	1.82 (0.06)	54.8
Spontaneous urine leakage (drops)	151	46.5	103	31.7	41	12.6	30	9.4	1.58 (0.06)	53.5
Difficulty emptying your bladder or difficulty urinating	244	75.1	41	12.6	22	6.8	18	5.5	1.72 (0.09)	24.9
Pain or discomfort in your lower abdominal, pelvic or genital area	221	68.0	54	16.6	27	8.3	23	7.1	1.70 (0.08)	32.0
			1-3 times/day		3-6 times/day		>6 times/day			
Frequency of urination			21	6.5	201	61.8	103	31.7	2.25 (0.031)	
Vasomotor symptom										
Heat Intolerance	144	44.3	60	18.5	64	19.7	57	17.5	1.98 (0.06)	55.7

Notes: [†] The mean severity score was calculated by multiplying the percentage by the score point. The zero score was not included.

Table 4 Prevalence and Severity Scores of Selected GSM Symptoms Using the Vulvar Disease Quality of Life Index (VQLI) in Jordanian Postmenopausal Women

GSM	Severity								Total	
	No Symptoms (0 Point)		Mild (1 Point)		Moderate (2 Points)		Severe (3 Points)		Mean (SE)[†]	%
	n	%	n	%	n	%	n	%		
Itching, pain and/or burning in the vagina	191	58.8	72	22.2	40	12.3	22	6.8	1.63 (0.07)	41.2
Painful urination	276	84.9	39	12.0	8	2.5	2	0.6	1.24 (0.08)	15.1
Painful intercourse*	170	52.3	35	10.8	19	5.8	19	5.9	1.78 (0.10)	22.4
Vaginal discharge	194	59.7	85	26.2	33	10.2	13	4.0	1.45 (0.06)	40.3
Concentration and focus	222	68.3	57	17.5	29	8.9	17	5.2	1.61 (0.08)	31.7
Choosing underwear/clothes	217	66.8	60	18.5	28	8.6	20	6.2	1.63 (0.08)	33.2
Disrupted sleep	176	54.2	74	22.8	44	13.5	31	9.5	1.71 (0.07)	45.8
Interfered with sexual life (including decreased libido, decreased frequency of sex and/or enjoyment of sex)	182	56.0	34	10.5	54	16.6	55	16.9	2.15 (0.07)	44.0

Notes: [†] The mean severity score was calculated by multiplying the percentage by the score point. The zero score was not included. *82 (25.2%) participants were either single, widowed, or not applicable.

and dyspareunia (22.4%) were the least reported complaints; however, the severity score of dyspareunia was higher than that of more frequent GSM symptoms.

GSM symptoms interfered with the participants' sleep and sexual activity in 45.8% and 44% of the population studied, with a mean score of 1.71 and 2.15, respectively (Table 4). To a lesser extent, GSM interfered with concentration and focusing, as well as wearing specific clothing or underwear. The correlations of type of GSM to sexual activity interference revealed that painful intercourse ($r=0.567$, $p<0.0001$) was the highest, followed by pain in the lower abdomen, pelvic or genital area ($r = 0.425$, $p = 0.001$), and the least was itching and or burning sensation in the vagina ($r = 0.298$, $p = 0.012$).

Prevalence and Severity of GSM Scores in Relation to Smoking, BMI, and years of Postmenopause

Smoking was associated with higher UDI-6 scores ($p =0.045$), but not with VQDLI. Smoking was associated with high scores for stress urinary incontinence (1.74 versus 2.19; $p = 0.004$) and painful intercourse (1.66 versus 2.27; $p = 0.011$) (Figure 1). Furthermore, high BMI was associated with higher UDI-6 and VQDL1 scores ($p = 0.029$ and $p = 0.043$).

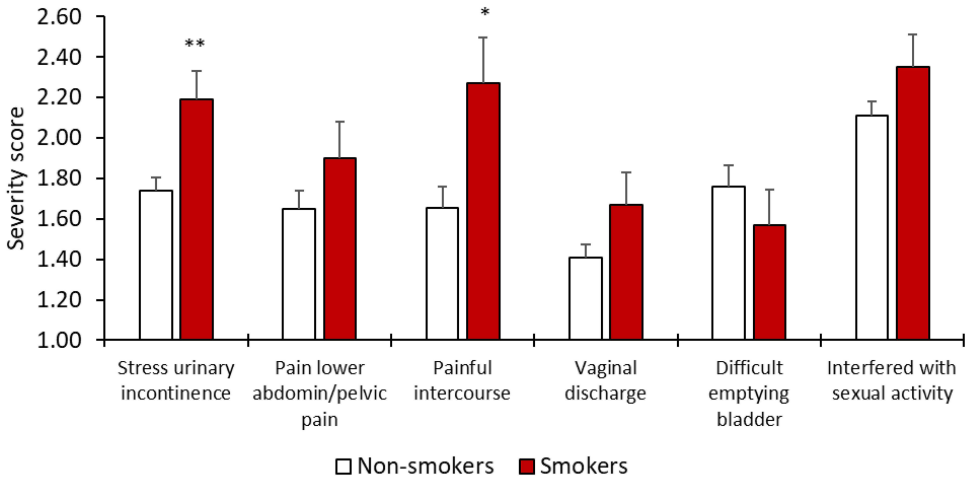

Figure 1 Severity scores of some GSM symptoms in smokers versus non-smokers postmenopausal Jordanian women (**p = 0.004; * p= 0.011).

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Figure 2 Severity scores of some GSM symptoms in Jordanian women who had been postmenopausal for 5 years or less, compared with women who had been postmenopausal for more than 5 years (* p =0.041). There was a trend towards significance in GSM association with the severity scores of difficulty sleeping (p = 0.074) and interference with sexual activity (p = 0.053).

Smoking and high BMI were associated with the prevalence of urge urinary incontinence (p = 0.001 and p = 0.001, respectively). Education, marital status, and living status were not associated with the prevalence and or GSM scores.

The prevalence of dysuria was higher (p = 0.007) in women with shorter years of postmenopause (5 years or less) compared with women with longer years of postmenopause (ie,>5 years). Similarly, heat intolerance was associated more (p < 0.0001) in women with shorter years of postmenopause. On the other hand, vaginal discharge showed a trend to be higher in women with longer years of menopause (p = 0.074).

The VQDI and UDI-6 scores were not significantly different between women with longer years of postmenopause (ie, >5 years) and those with shorter years of postmenopause (5 years or less). However, the mean severity score of difficulty emptying the bladder was higher in women who had been menopausal for more than 5 years (p = 0.041) (Figure 2). To a lesser extent, GSM interfering with sleep and sexual activity scores showed a trend to be higher but did not reach significance (p = 0.074 and 0.053).

Discussion

The present study showed that GSM among postmenopausal Jordanian women attending a tertiary care hospital in Jordan with menopause was 84.9%, of which urinary symptoms (100%) were more frequent than genital ones (84%). These percentages were higher than those reported in a French study (68%),[12] a Spanish study (71%),[10] and an Iranian study (52.3%),[28] but were similar to those reported in an Italian study.[29] The differences in prevalence across the studies mentioned above are due to the study designs. The lower percentages were from population- or community-based studies, whereas the Spanish and Italian studies in the present study were derived from postmenopausal women with at least one vaginal symptom, rather than GSM-related symptoms. Furthermore, in the French study with 3685 postmenopausal women not receiving hormone therapy, 87% reported at least one GSM, and 68% reported an average of 2.5 symptoms per person. In the present study, the average GSM per person was 5.1, which is an alarming number of symptoms. These differences suggest that women tend to seek medical attention only when symptoms become more frequent or uncomfortable, potentially reflecting delayed presentation or underdiagnosis. Together, these findings highlight the importance of considering local context when assessing GSM.

The pattern and frequency of symptoms observed in this study differed from that described in Western populations. While vaginal dryness is reported as the most common symptom in studies from the United States and Europe,[12,30,31] urinary symptoms, especially stress and urge urinary incontinence were more prevalent in our study. For instance, vaginal

dryness was the most commonly reported symptom (37%), followed by urinary urgency (29%) in the United States.[12] In a cohort study in the United States that included 8081 postmenopausal women, only 38% reported at least one genital symptom.[30] In another United States study that included urinary symptoms as GSM, the study presented that the most commonly reported symptom was vaginal dryness in 94% of the studied population compared to a prevalence of urinary incontinence (67%) and urinary frequency (43%).[31] In contrast to the present study, the above studies showed that genital symptoms prevail more than urinary symptoms. However, in two unrelated Chinese studies, one presented a high prevalence of GSM, including urinary incontinence (91.7%) and vaginal dryness (91.6%),[18] and the other reported 47.5% of urinary incontinence and 34.5% of vulvovaginal atrophy.[16] All in all, these differences outline that cultural variations and epigenetics may play a role in the prevailing specific symptoms of GSM.

GSM symptoms interfered with the participants' sleep and sexual activity, and to a lesser extent, with focusing and wearing clothes. Furthermore, the severity score of such interference was the highest on sexual activity, which is similar to the other studies.[10,30] Furthermore, GSM symptoms interfered with the 44% of the Jordanian postmenopausal women's sexual activity, and it was mainly due to pain during intercourse and or pain in the genital area or pelvic floor. All of these symptoms are known to be linked to low estrogen levels during menopause, which causes thinning and dryness of the vaginal wall, explaining further the association of higher severity scores of interference with sexual activity in women with more than 5 years of menopause. Due to these specific GSM symptoms, sexual desire and satisfaction would become lower with menopause age.[32] Although this study did not address depression association with GSM symptoms, including sexual desire and satisfaction, a higher prevalence of depression and anxiety may occur.[32] Therefore, it is essential to implement studies on women's sexual health with and without GSM in Jordanian women.

Vasomotor symptoms, such as hot flashes or heat intolerance, have been reported to prevail in the early onset of menopause.[2] Similarly, the present study showed that the prevalence of heat intolerance was higher, but not the severity score, in women with a 5-year or less of menopause than in women with longer than 5 years of menopause. As for GSM, the prevalence of dysuria was higher in women with shorter years of menopause (5 years or less) compared with women with longer years of menopause (ie, >5 years). These decreases in some prevalences in women with longer duration of menopause may be related to the body's adaptation to low estrogen changes.[1] On the other hand, some urogenital symptoms increase over the years of estrogen deficiency. For instance, the mean severity score of difficulty emptying the bladder was higher in women who had been postmenopausal for more than 5 years. This phenomenon is due to weakening of pelvic floor muscles and decline in estrogen and androgen receptors in the bladder and urethra muscle function and their ligands,[1,33,34] and is associated with aging, obesity, and menopause.[1,35]

The prevalence of smoking in our study sample was 16%. Although the percentage is not considered high, it is a similar percentage to that presented in another study from Jordan, which showed that smoking is a risk factor for premature/early menopause.[23] In the present study, smoking was associated with the severity of some GSM, mainly stress urinary incontinence and painful intercourse, and associated with a high prevalence of urge urinary incontinence. These findings are in agreement with previous studies, whereby smoking is associated with stress urinary incontinence,[36] and others showed smoking increased the prevalence of urgency and urgency urinary incontinence.[37] It has been shown that smoking accelerates estrogen metabolism, leading to vaginal atrophy and other low estrogen-mediated conditions.[38]

In this study, 81.5% of the studied population were overweight to obese, and high BMI was associated with high UDI-6 and VLDQ1 scores. Although a previous study has shown that urinary stress incontinence is associated with obesity,[39] the present study showed that urinary urgency was associated with high BMI but not stress urinary incontinence.

It is essential to emphasize the importance of microbiota in the urogenital tract. In a recent study, it has been shown that there is a significant difference in the vaginal microbiota among women with non-GSM versus women with GSM.[40] These differences include the balance between the presence of lactobacillus versus other types of bacteria (eg. Enterococcus, Streptococcus, Anaerococcus). Such a study opens a new direction for understanding GSM beyond estrogen treatment.

The findings from this study suggest the need for greater awareness and routine screening for GSM symptoms in clinical practice in Jordan. Healthcare clinicians may benefit from taking a more open and supportive approach to urinary, genital, and sexual symptoms, particularly in postmenopausal women, to help reduce underreporting in more

conservative settings. Early recognition and appropriate management can play an important role in improving overall quality of life and health outcomes.

The present study has limitations. It is cross-sectional and therefore limits the establishment of causality between risk factors and outcomes. The reliance on self-reported questionnaires introduces the potential for recall bias or inaccuracies in symptom reporting and lifestyle factors. Comorbidities such as diabetes and hypertension were not evaluated. Although the study represents women living in different cities in Jordan, the findings may have limited generalizability, as the study population was drawn from a single tertiary hospital in Jordan, and thus excludes other medical institutions across Jordan, which would impact the broader applicability of our results. Underreporting was another notable limitation, as women may feel embarrassed discussing GSM symptoms, particularly in a conservative cultural setting like Jordan.

Conclusion

The present study showed that a high percentage of postmenopausal Jordanian women develop GSM, with several symptoms per person. The highest prevalence of GSM was the urinary symptoms. Furthermore, the highest bothersome score was GSM interference with sexual activity. Smoking was associated with the severity of stress urinary incontinence and painful intercourse, and smoking and high BMI were associated with the prevalence of urge urinary incontinence. Future studies should expand research across different regions of Jordan and incorporate qualitative analyses to explore women's attitudes toward seeking medical consultation for GSM symptoms. A broader, more diverse sample would provide a more comprehensive understanding of GSM prevalence and its impact on Jordanian postmenopausal women.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon request.

Ethics Approval

The study was conducted in accordance with the guidelines of the Declaration of Helsinki and was approved (#10/2024/2794) by the Institutional Review Board of Jordan University Hospital. No identifying information was obtained, and all collected data were solely used for statistical analysis.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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The authors declare that they have no conflicts of interest.

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