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## Evaluation of Urological Symptoms in Postmenopausal Women with Genitourinary Syndrome

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### ABSTRACT

In menopause, genitourinary symptoms are known to be chronic and progressive. This progression is attributed to hormonal changes and the natural aging process, leading to ongoing challenges in managing these symptoms for affected individuals. This study aimed to investigate the prevalence and determinants of genitourinary syndrome of menopause (GSM) in postmenopausal women from India. A cross-sectional study was conducted over a 9-month period involving 223 women who had undergone menopause at least one year prior and were visiting the Gynecology OPD of an Indian hospital. Participants provided informed consent before enrollment. A structured questionnaire was used to assess genitourinary symptoms and the relationship between these symptoms and various factors was analyzed. The prevalence of genitourinary syndrome was determined to be 38.11%. The most common genital symptom reported was vaginal irritation/burning, followed by vaginal dryness. Among urological symptoms, increased frequency of urination and dysuria were the most prevalent. Dyspareunia, primarily in sexually active women, was also reported by some participants. The most prevalent signs observed were loss of vaginal rugae and vaginal pallor. Women with existing urogynecological conditions and a BMI >30 kg/m<sup>2</sup> had a higher prevalence of genitourinary symptoms. The prevalence of GSM was found to be notably high in Indian women. This underscores the urgent need for dedicated menopausal clinics in both government and non-government healthcare sectors to facilitate timely diagnosis, treatment and improvement of the quality of life for menopausal women.

## INTRODUCTION

Menopause is a universally acknowledged phenomenon in a woman's life, defined by the World Health Organization (WHO) as the permanent cessation of menstruation for 12 consecutive months due to the loss of ovarian function. Globally, the average age of natural menopause is 51 years, whereas in India, it occurs at a relatively younger age of 46 years. Around 70% of menopausal women encounter somatic, psychological, vasomotor, sexual and genitourinary symptoms. Among them, approximately 50% experience genitourinary and sexual symptoms collectively referred to as "Genitourinary Syndrome of Menopause" (GSM). This term was adopted by the International Society for the Study of Women's Sexual Health (ISSWSH) and the North American Menopause Society (NAMS) in 2014 to replace the previously used terms like vulvovaginal atrophy and atrophic vaginitis<sup>[1-4]</sup>.

Unlike the transient nature of vasomotor symptoms, genitourinary symptoms are chronic, progressive and tend to worsen over time. GSM includes signs and symptoms related to vulvovaginal, urinary tract and sexual dysfunction resulting from the hypoestrogenism of menopause. Various studies have reported vulvovaginal symptoms in 45-65%, urinary symptoms in about 20-50% and sexual symptoms in about 20-40% of menopausal women<sup>[5-7]</sup>.

Despite the high prevalence of genitourinary symptoms during menopause, they often go undiagnosed and untreated. This could be attributed to factors such as lack of awareness, associating symptoms with natural aging and reluctance to discuss symptoms with family members and healthcare providers. There's a general lack of understanding that these symptoms are treatable and can significantly improve quality of life. While menopause-related symptoms have been extensively studied, research on GSM has not received adequate attention in India. This study aims to determine the prevalence of genitourinary symptoms among Indian menopausal women and identify factors, apart from menopause, that contribute to these symptoms.

## MATERIALS AND METHODS

This single-center, cross-sectional and observational study focused on postmenopausal women attending OPD of an Indian hospital over a period of 9 months. The sampling frame included all menopausal women visiting the OPD and purposive sampling was utilized as the sampling technique. The study enrolled 223 postmenopausal women who visited the gynecologic OPD during the study duration,

had undergone menopause one or more years prior and provided consent after receiving an explanation about the study's structure and nature. Exclusion criteria comprised perimenopausal women, postmenopausal women with surgical menopause or currently on hormone or non-hormonal replacement therapy, undergoing chemotherapy or radiotherapy for a known malignancy, exhibiting abnormal cytology in pap smear with or without suspected malignancy, having serious disease or mental retardation, experiencing chronic disease or organ dysfunction, using antiestrogen, antipsychotic, steroid, or antidepressant medication, or employing lubricant powder or irritant panty liners. The study utilized a structured questionnaire with two parts. Part 1 collected general information, including socio-clinico-demographic data, obstetrical, menstrual and sexual history, as well as personal and family history. Part 2 focused on GSM symptoms, using a checklist of 20 issues (6 vulvovaginal symptoms, 7 urinary symptoms and 7 sexual symptoms) with yes or no options.

Data analysis was performed using the Epi Info free version. Descriptive analyses were conducted to determine mean values and standard deviations for continuous variables and proportions for categorical variables. Pearson's Chi Square test was employed for comparisons between groups and single-factor analysis, while binary logistic regression analysis was used to assess the relationship between demographic characteristics and GSM. A significance threshold of  $p < 0.05$  was set.

## RESULTS AND DISCUSSIONS

(Table 1) presents the demographic characteristics of the participants in the study. A majority of the female participants were aged between 51-60 years, had no formal education, belonged to a lower socioeconomic status, had a BMI ranging from 25-30 kg/m<sup>2</sup>, experienced menopause for over 5 years and reported sexual inactivity.

(Table 2) displays the genitourinary symptoms observed in the study participants. Vulvovaginal symptoms were the most prevalent, followed by urological symptoms. The most common signs noted were the loss of vaginal rugae and paleness of the vaginal mucosa (Table 3). (Table 4) presents the socio-demographic and pathological factors associated with GSM. The duration of education, menopausal status and obesity were identified as significant determinants of GSM. Additionally, stress incontinence, recurrent urinary tract infections and vaginal prolapse were found to be significantly

associated with GSM (Table 5). During reproductive years, estrogen receptors are distributed across various anatomical locations including the vagina, vulva, pelvic floor musculature, endopelvic fascia, urethra and bladder trigone. With the onset of menopause, there is a decline in the levels of these receptors, leading to significant atrophic changes and the emergence of symptoms characteristic of vulvovaginal, urinary tract and sexual dysfunction<sup>[8]</sup>.

Vaginal atrophic changes manifest as epithelial thinning, loss of rugation and reduced lubrication during sexual intercourse. The atrophic vaginal tissue undergoes gradual traumatization, heals through fibrosis and consequently experiences a reduction in size and length. The process of vaginal lubrication involves transduction in response to fluid congestion in perivaginal tissue. However, this lubrication diminishes during menopause due to atrophic changes, contributing to sexual symptoms<sup>[9]</sup>. The impact of atrophic changes extends to the urethra and bladder trigone, leading to urinary symptoms such as dysuria, increased frequency of urination and urge incontinence. Gradual loss of pelvic muscle tone and pelvic ligament elasticity results in a lower closing pressure of the urethra, contributing to incontinence<sup>[10]</sup>.

In a study involving 162 participants with a mean age of  $59.5 \pm 8.4$  years, 38.6% reported Genitourinary Syndrome of Menopause (GSM). This prevalence rate is consistent with findings from studies by Geng *et al.*, Chua *et al.* and Nappi *et al.* However, contrary results were documented in other studies, for instance, Moral E. *et al.* reported a much higher prevalence of GSM among Spanish postmenopausal women, while Franklin José Espitia De La Hoz found a prevalence of 51.6% in women from Colombia. The lower prevalence observed in the present study may be attributed to social stigma hindering participants from disclosing their symptoms and a larger sample size may reveal a varied prevalence of GSM<sup>[11-15]</sup>.

The most common vulvovaginal symptom reported in this study was vaginal irritation/burning, whereas vaginal dryness was more commonly reported in other studies such as those by Geng *et al.*, Chua *et al.* and Moral *et al.* A study by Palma *et al.* found that 56.9% of women experienced vaginal irritation and burning, aligning with the findings of this study<sup>[16]</sup>.

Sexual symptoms were reported by a small percentage of women with GSM in this study, with dyspareunia being the most common. This contrasts with other studies where sexual problems were more prevalent. Urological symptoms were highly prevalent in this study, with increased frequency of micturition

**Table 1: Demographic variables of study participants**

Characteristic	No.	Percentage
<b>Age groups</b>		
40-50 years	62	27.80
51-60 years	103	46.19
>60 years	58	26.01
<b>Education</b>		
None	116	52.02
Primary school	43	19.28
Middle school	22	9.87
High school	30	13.45
Graduate	12	5.38
<b>Socioeconomic status</b>		
Lower	115	51.57
Middle	74	33.18
Upper	34	15.25
<b>BMI</b>		
<25 kg/m <sup>2</sup>	33	14.80
25-30 kg/m <sup>2</sup>	113	50.67
>30 kg/m <sup>2</sup>	77	34.53
<b>Duration of menopause</b>		
1-5 years	99	44.39
>5 years	124	55.61
<b>Sexual activity</b>		
Sexually Active	26	11.66
Sexually Inactive	197	88.34

**Table 2: Genitourinary Symptoms in study participants**

Symptoms	No.	Percentage
Arousal Difficulty	8	9.41
Bleeding after intercourse	10	11.76
Discharge per vaginum	47	55.29
Dyspareunia	12	14.12
Dysuria	44	51.76
Increased frequency of micturition	47	55.29
Irritation/burning	59	69.41
Itching	18	21.18
Pelvic pain	51	60.00
Recurrent UTI	23	27.06
Sexual Symptoms	22	25.88
Stress incontinence	14	16.47
Urgency	15	17.65
Urological Symptoms	63	74.12
Vaginal dryness	52	61.18
Vulvovaginal Symptoms	70	82.35

**Table 3: Genitourinary Signs in study participants**

Signs	No.	Percentage
Loss of vaginal rugae	75	88.24
Vaginal pallor	59	69.41
Petechiae/fissures/fragility	53	62.35
Decreased elasticity of vagina	43	50.59
Prominent urethral meatus	29	34.12
Introital retraction	25	29.41
Total	85	100.00

being the most common symptom, followed by dysuria. However, the prevalence of urinary symptoms was lower in other studies such as the AGATA study and a study by Manonai *et al.*<sup>[17,18]</sup>.

The prevalence of GSM was significantly associated with lower socioeconomic status and educational levels in this study, consistent with findings from other studies. Additionally, women who had reached menopause >5 years ago reported more urogenital symptoms and GSM was significantly associated with urogynecological pathologies like stress incontinence, recurrent UTIs and vaginal prolapse<sup>[19-22]</sup>. Furthermore, GSM was reported more

**Table 4: Socio-demographic and pathological determinants of GSM**

Determinant	Total n = 223	GSM n = 85	Non-GSM n = 138	Odds Ratio	p-value
<b>Education</b>					
Illiterate	116	53	63	2.17	<0.05
Literate	107	32	75		
<b>Socioeconomic status</b>					
Lower	115	48	67	1.50	0.32
Upper and middle	108	37	71		
<b>Duration since menopause</b>					
1-5 years	99	29	70	2.23	<0.05
>5 years	124	56	68		
<b>Obesity</b>					
Obese >30 kg/m <sup>2</sup>	77	53	24	7.51	<0.05
Nonobese <30 kg/m <sup>2</sup>	146	32	114		

**Table 5: Association of urogynaecological pathology and GSM**

Pathology	GSM n = 62	Non-GSM n = 100	Odds Ratio	p-value
<b>Stress Incontinence</b>				
Yes	14	7	3.41	<0.05
No	71	131		
<b>Recurrent Urinary Tract Infection</b>				
Yes	23	17	2.69	<0.05
No	62	121		
<b>Vaginal Prolapse</b>				
Yes	36	19	4.15	<0.05
No	49	119		

frequently by women with a BMI >30 kg/m<sup>2</sup> in this study, aligning with observations from other studies associating GSM with higher BMI, multiple abortions and diabetes<sup>[11]</sup>.

## CONCLUSION

This study has revealed a significant prevalence of GSM among postmenopausal Indian women. The most prevalent symptoms were vulvovaginal symptoms followed by urological symptoms. Obesity emerged as a significant determinant of GSM. In our setting, societal stigma, cultural norms and personal embarrassment often lead women to disregard these symptoms and refrain from seeking medical help. There is a pressing need for both government and private healthcare sectors to establish menopause clinics to address this significant yet often overlooked postmenopausal health concern. Such clinics can play a crucial role in improving the quality of life for menopausal women and addressing the unmet needs related to GSM.

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