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## Online survey of genital and urinary symptoms among Japanese women aged between 40 and 90 years

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### ABSTRACT

**Objective:** The purpose of this survey was to assess the prevalence of genital and urinary tract symptoms among Japanese women with declining estrogen levels.

**Methods:** A health-related questionnaire survey was conducted among women in their 40s or older to inquire about their genital, intercourse-related, and urinary symptoms and concern over their symptoms.

**Results:** Of the consecutive 10,000 respondents recruited, 4488 (44.9%) reported having symptoms: 3546 (79.0%) expressed concern over their symptoms. Furthermore, 2173 women (21.7%) had incontinence, 1999 (20.0%) had urinary frequency, 1648 (16.5%) had itching, and 1560 (15.6%) reported odor; these were followed by looseness, dryness, and burning. Of the 2518 (25.2%) sexually active women, 518 (20.6%) reported having dyspareunia and more reported having urinary symptoms than genital symptoms. Of the symptomatic respondents, 33.1% had genital symptoms alone, 28.4% had urinary symptoms alone, and 38.4% had both. More sexually active women had genital symptoms, while more sexually inactive women had urinary symptoms.

**Conclusions:** Genital and urinary symptoms were shown to be common and coexist in a considerable proportion of the respondents, highlighting the pathology of genitourinary syndrome of menopause. Again, dyspareunia and lower urinary tract symptoms were shown to be quite common among postmenopausal women.

### ARTICLE HISTORY

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Nationwide online survey; Japanese women; genital symptoms; urinary tract symptoms; quality of life

### Introduction

With the increasing graying of society, age-associated health problems are becoming a health care and social concern in developed countries. It is known that women are placed at a higher risk of longevity-associated diseases than men, which has come to be termed a 'sex-related longevity risk'<sup>1,2</sup> associated with conditions and diseases resulting from estrogen deficiency in women during their perimenopausal phase, and these are associated with frailty in women and include motor diseases, dementia, and genitourinary syndrome of menopause (GSM). Of all the symptoms of GSM, those affecting the genitourinary organs may be difficult to mention or seek medical consultation about<sup>3,4</sup>, and thus may often remain unrecognized and largely self-managed<sup>5</sup>. As a consequence, while they may be found to be chronic or advanced, thus compromising the quality of life (QOL) of affected women<sup>6</sup>, their prevalence or the impact of associated symptoms remains to be accurately grasped.

Previously referred to as vulvovaginal atrophy, GSM has been shown to be associated with declining estrogen levels among women, starting during their perimenopausal phase

and affecting many women in their postmenopausal phase. With a prevalence of approximately 50% among postmenopausal women, GSM has been shown to have a major impact on the QOL of affected women as well as on their sexual function<sup>1-5</sup>. GSM has been also shown to be responsible for genital symptoms, such as vaginal dryness, itching, burning, and hypersensitivity, and associated dyspareunia, as well as lower urinary tract symptoms, such as dysuria, urinary frequency, urgency, incontinence, and recurrent urinary tract infections<sup>6,7</sup>.

It appears that many women treat GSM with over-the-counter medications or leave it untreated, believing it to be an inevitable part of aging. As a result, the condition gradually becomes chronic and prolonged, thus causing more worry. We previously analyzed data from a self-administered Keio health survey in middle-aged and elderly patients receiving outpatient menopausal care<sup>8</sup>. This survey included four items on vaginal symptoms: 'My vagina feels dry' (vaginal dryness); 'I have colored vaginal discharge' (brown vaginal discharge); 'My vagina itches' (vaginal itching); and 'I experience pain during intercourse' (dyspareunia). We

reported that a high proportion of the respondents (56.4%) had at least one of these vaginal symptoms<sup>8</sup>.

However, this prevalence rate is of limited relevance given that the data came from patients receiving outpatient menopausal care. Again, it has long been considered taboo in Japan even to ask questions about sexuality, including those about genital, urinary tract, or sex-related symptoms. Therefore, very few data are available not only for those who have sought consultation but for the majority who have never done so, thus leaving the relationship between genital, urinary tract, and sex-related symptoms and GSM unclear.

Therefore, a web-based questionnaire survey was conducted to gain insight into the status of GSM among women in their 40s or older who were assumed to be at risk of GSM due to estrogen deficiency, as well as to provide new recommendations for GSM based on the survey results.

## Methods

The questionnaire survey, composed of five items (Supplementary Table 1), was conducted online by Macromill Carenet Inc. over a course of 3 days, beginning on 2 February 2017. Of the 75,072 women approached (31,952, 25,736, and 17,384 women in their 40s, 50s, and 60s or older, respectively), a total of 15,207 women responded from the 47 prefectures of Japan. Of these, a total of 207 were excluded as ineligible. Of the remaining 15,000 women found to be eligible, a total of 10,000 randomly selected women were recruited as eligible from all age groups, as follows: 7.8% of all respondents in their 40s (2500); 15.5% of all respondents in their 50s (4000); and 20.1% of all respondents in their 60s or older (3500). The women were sent emails about the survey and asked to respond to the questionnaire posted on the designated website. After the target number of responses was obtained, the website was closed. This study was approved by the institutional review board, and informed consent was obtained from all participants.

## Results

Table 1 presents the characteristics of the participants. The mean age of the 10,000 women was  $55.9 \pm 9.4$  years (range, 40–90 years), 72.4% were married, 73.3% had children, 25.2% were sexually active, and 33.6% were premenopausal. These characteristics were shown to be consistent with those reported in a national demographic survey conducted in 2016<sup>9</sup>. With regard to their level of activity, 20.3% reported going out (to do something outdoors rather than stay indoors at all times) every day per week, 55.0% reported doing so 3–6 days per week, and 24.7% reported doing so less than 3 days per week.

The questionnaire shown in Supplementary Table 1 asked about genital, intercourse-related, and urinary tract symptoms. Of the 10,000 respondents, 4488 women (44.9%) reported having symptoms; and of these, 3546 (79.0%) reported concern over their symptoms. Incontinence was the most common of all symptoms, affecting 21.7% ( $n = 2173$ ) of the respondents, followed by urinary frequency ( $n = 1999$ ;

20.0%), itching ( $n = 1648$ ; 16.5%), and odor ( $n = 1560$ ; 15.6%) (Figure 1). Among the 2518 sexually active women (25.2%), dyspareunia was the most common genital symptom ( $n = 518$ ). When intercourse-related symptoms were excluded, urinary tract symptoms were more common than genital symptoms among these women. Moreover, of the 4488 symptomatic women, 1486 (33.1%) had genital symptoms alone, 1275 (28.4%) had urinary tract symptoms alone, and the largest proportion of women ( $n = 1727$ ; 38.5%) had both genital and urinary tract symptoms.

These symptoms were then compared between the women with partners based on their sexual activity. Of the 7473 women with partners, 2486 women (33.3%) were sexually active, with the proportions of sexually active women in their 40s, 50s, and  $\geq 60$ s shown to decline with increasing age at 51.8%, 34.0%, and 18.7%, respectively (Supplementary Figure 1). Sexually active women had genital symptoms alone (39.3%) more than twice as often as urinary tract symptoms alone (17.9%), while sexually inactive women had urinary tract symptoms alone (33.0%) slightly more often than genital symptoms alone (30.4%). Again, regardless of their sexual activity status, more women had both genital and urinary tract symptoms than genital symptoms alone or urinary tract symptoms alone (Supplementary Figure 2).

In this survey involving not only postmenopausal but premenopausal women, the prevalence of symptoms varied depending on whether or not they were menstruating. The survey found that the postmenopausal, premenopausal, and perimenopausal women accounted for 66.4%, 24.8%, and 8.8% of the respondents, respectively.

Genital symptoms were often shown to be absent among those no longer menstruating (Figure 2). In contrast, more premenopausal women, including those in their 40s, reported having odor and itching among all genital symptoms, while both premenopausal and postmenopausal women reported having incontinence among all urinary tract symptoms. Again, while 3.1% of the premenopausal women reported having dyspareunia, three times as many postmenopausal women (9.5%) reported having dyspareunia.

## Discussion

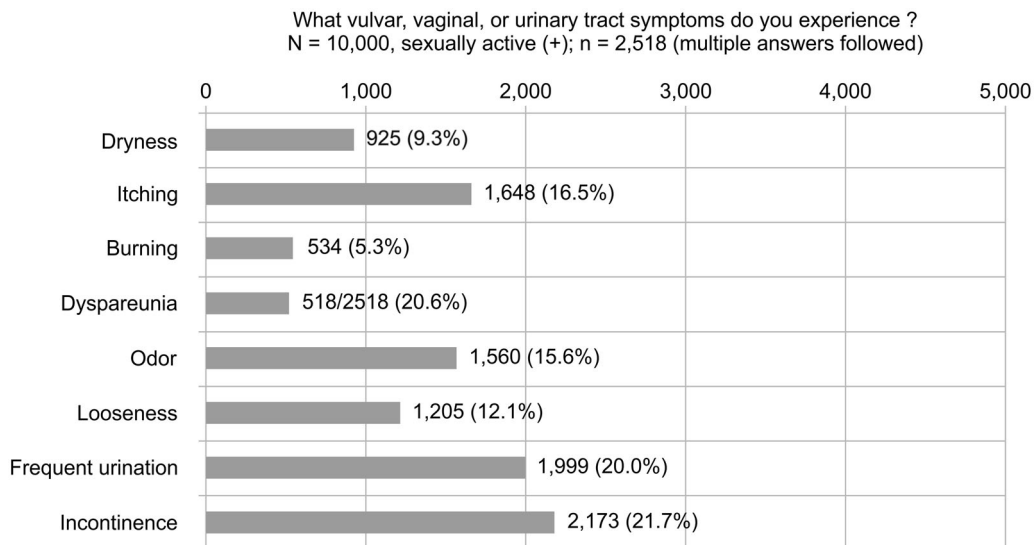
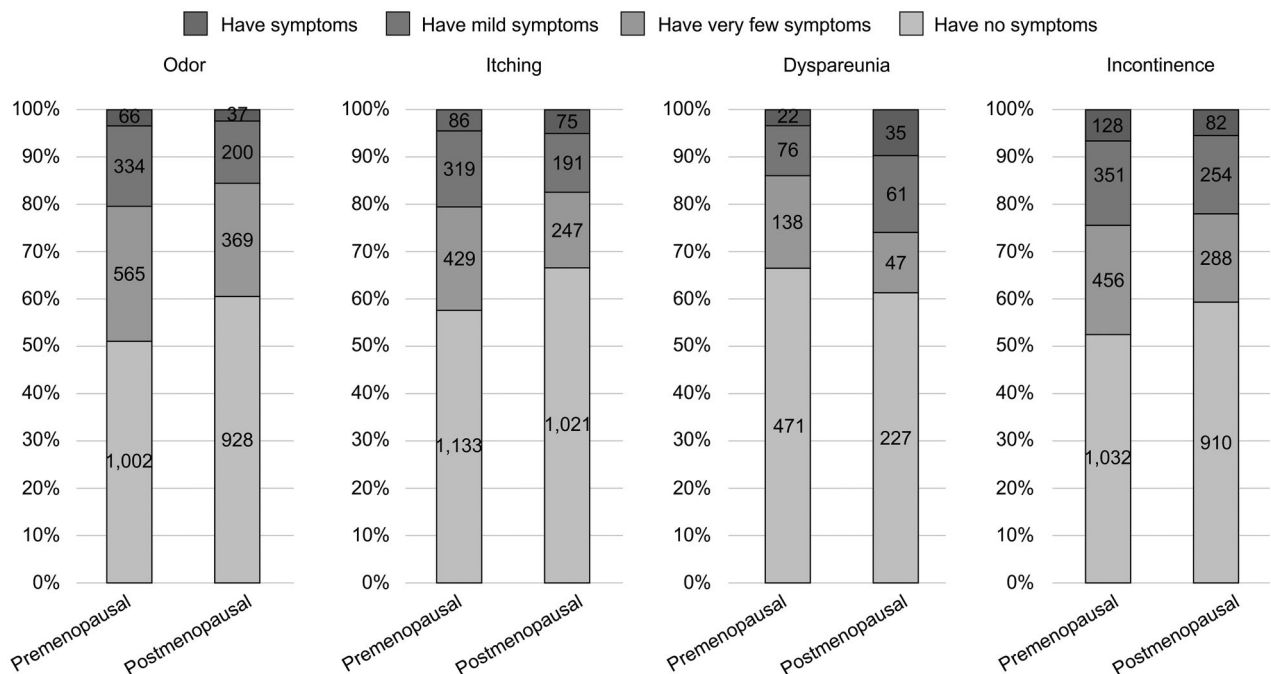
This study revealed that women with declining estrogen levels often had genital and urinary tract symptoms together, suggesting an association with GSM. To our knowledge, this was the first study to show the coexistence of urinary and genital symptoms in a considerable proportion of women with declining estrogen levels.

Globally, earlier studies included postmenopausal women alone, where a North American survey<sup>10</sup> showed that 40% of postmenopausal women experience typical symptoms of vaginal atrophy that have a major impact on their sexual function and QOL, while another survey showed that only 25% of these women sought consultation for their symptoms<sup>11</sup>.

A large European survey<sup>12</sup> in 4201 postmenopausal women indicated a need for creating an environment through which to obtain more in-depth information on the

**Table 1.** Characteristics of the survey participants (n = 10,000).

Age group (years)	n	Age (years)	Married (%)	Children (%)	Partnered (%)	Sexually active (%)
40s	2500	44.2 ± 2.8	69.0	59.3	75.4	39.8
50s	4000	53.9 ± 2.7	73.0	71.3	76.3	26.2
≥60s	3500	66.4 ± 5.2	74.3	85.7	72.5	13.6
Total	10,000	55.9 ± 9.4	72.4	73.3	74.7	25.2

**Figure 1.** Genital and urinary tract symptoms. Women reported having urinary tract symptoms (incontinence and urinary frequency) and intercourse-related symptoms (dyspareunia) more often than genital symptoms (itching, odor, looseness, dryness, and burning).**Figure 2.** Frequency of symptoms among women by their menopausal status. Premenopausal women, including those in their 40s, reported having odor and itching more often than postmenopausal women, and postmenopausal women reported having dyspareunia three times more often than premenopausal women. Both premenopausal and postmenopausal women reported having incontinence.

impact of vaginal atrophy on the QOL of postmenopausal women.

In Japan, a survey conducted earlier in an outpatient menopausal care setting<sup>13</sup> showed that 56.4% of respondents had some form of vaginal atrophy, presenting as dryness, discharge, itching, or dyspareunia, while another online survey of 152 postmenopausal women receiving no

specialized care showed that 44 respondents (28.9%) reported having vaginal symptoms<sup>14</sup>, a significantly lower proportion than among those receiving outpatient menopausal care, suggesting that the reported prevalence of symptoms associated with vaginal atrophy varies between those receiving care and those not receiving care. The present study was larger than the earlier online survey<sup>14</sup> and

was the first survey conducted nationwide to obtain 10,000 responses from women about questions related to their genital and urinary tract symptoms. Our survey found that 44.9% of respondents had symptoms, which is similar to that reported in the North American survey<sup>10</sup>, suggesting that the prevalence of GSM remains similar despite the inclusion of premenopausal women in this survey, who accounted for one-third of all respondents.

When analyses were limited to those reporting symptoms in this survey, 33.1% of these women reported having genital symptoms and accounted for a greater proportion than those reporting urinary tract symptoms (28.4%), while the largest proportion (38.5%) of women reported having both symptoms. Further, the present study surveyed women in their 40s, which, unlike the other surveys, meant that not all respondents were postmenopausal, with 3360 women (33.6%) being premenopausal and 6640 women (66.4%) being postmenopausal. The premenopausal women had significantly more itching, odor, and vaginal looseness and tended to have more burning and dryness and less dyspareunia, while there was no significant difference in the prevalence of urinary tract symptoms between the premenopausal and postmenopausal women. This result indicates that menstruation is likely associated with genital symptoms, such as vaginal itching and odor, and is less likely associated with dyspareunia, but that urinary tract symptoms are present from their 40s onward, regardless of menstruation.

With regard to the frequency of genital symptoms, 34–43% of the women in their 40s or older reported having genital symptoms in an online international survey<sup>15</sup>, with their severity reported to be moderate to severe in 41–63% of these women. In a large study by the US Women's Health Initiative<sup>16</sup>, 41% reported having some kind of genital symptoms. Although the differences in survey subjects, methods, and symptom perceptions may have affected the results, it appears that about 40% of women in Europe and the USA experience genital symptoms. In the present study, about 45% of the respondents reported having genital symptoms, suggesting that these symptoms occur at about the same rate, regardless of race, in women in their 40s and older whose estrogen secretion is expected to decline.

When asked only about storage symptoms (incontinence and urinary frequency) in an earlier survey<sup>17</sup>, of all lower urinary tract symptoms, more women reported having urinary tract symptoms than genital symptoms, with half of these women also shown to have sexual dysfunction, a higher rate than that in the general population; and of these, those with stress urinary incontinence (SUI) were shown to have low sexual desire. Urinary tract symptoms have been shown to affect sexual function among both men and women aged between 40 and 65 years, and it is reported to be an independent risk factor for sexual dysfunction<sup>18</sup>.

Another study of about 2300 women in their 40s–60s examined the correlation between their sexual activity and urinary tract symptoms over a 1-year period<sup>19</sup> and found more urinary tract symptoms among sexually inactive women than among sexually active women; however, there was no change in urinary tract symptoms among

consistently sexually active women. Our baseline survey showed that sexually active women had less incontinence and urinary frequency, which is consistent with the data from Europe and North America.

In a study of the correlations between SUI, overactive bladder, health-related QOL, and sexual function<sup>20</sup>, women with SUI experienced more dyspareunia and incontinence during intercourse than women with overactive bladder. A Japanese study on the correlation between SUI and sexual dysfunction also suggested that sexual functions were lower among women with SUI than among women without SUI<sup>21</sup>.

This web-based survey has some limitations. First, the survey was limited to those who agreed to participate in the survey and to provide their personal information to Macromill Carenet Inc. Second, a total of 3500 women in their 60s or older (mean age, 66.4 years) accounted for about one-third of all respondents in their 40s–90s (mean age, 55.9 years). As the recruited respondents in their 40s accounted for only 7.8% of all respondents in their 40s, which is <50% of those in their 50s and 60s, this may have led to selection bias, thus affecting the survey findings. Third, this online survey enrolled a particular population of women who had Internet literacy. Fourth, while reported incontinence was thought more likely to be SUI, rather than urge incontinence thought likely to be more typical of GSM, all incontinence experienced was reported only as incontinence, because the simple questionnaire used in our survey did not allow these to be distinguished. Despite these limitations, however, premenopausal women who were assumed to have declining levels of estrogen accounted for 33.6% or one-third of all respondents in the survey, suggesting that not only postmenopausal but premenopausal women were well represented in the survey to provide a clear picture of GSM among women in their 40s–90s. Additionally, while the majority of earlier studies were conducted in westerners, this was the first large-scale survey ever conducted in Asia involving 10,000 Japanese women, a sufficiently large sample size for analysis.

The present survey indicated that genital and urinary tract symptoms often coexist and that GSM is a problem affecting the lower urinary tract as well. Many professional societies have reached a consensus regarding GSM, and the term GSM only recently become part of the glossary of the Japan Society of Obstetrics and Gynecology in April 2019. Through this study, it is hoped that the concept of GSM will receive widespread use in Japan as embodying a new mission in women's health.

## Conclusions

This first, large-scale, online Japanese survey showed that genital and lower urinary tract symptoms are common and coexist in about half of the respondents. Dyspareunia and incontinence were shown to be more common after menopause, thus affecting sexual activity. Again, itching and other genital symptoms were shown to be present not only due to menstruation among premenopausal women but due to vaginal atrophy among postmenopausal women in their 40s

or older. This result indicates that, rather than vulvovaginal atrophy, GSM is needed not only as a concept describing the total frailty of all urogenital organs but, more appropriately, as a concept of disease leading to compromised QOL in women with declining estrogen levels. It is crucial to increase medical and social awareness and understanding of GSM as well as to promote basic and clinical research on care for women with GSM in an aging society.

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## Ethical approval

This study followed the Guidelines for the Conduct of Medical Research in Human Subjects (Japanese Ministry of Education, Culture, Sports, Science, and Technology and Ministry of Health, Labor, and Welfare). Macromill Carenet Inc. was contacted to conduct the survey and followed the Japanese laws, guidelines, and other regulations on protecting the personal information while doing so. The authors were not provided with any information that could be used to identify the individuals.

**Potential conflict of interest** H. O. and S. S. received lecture fees from Pfizer and DEKA, respectively (but not in association with this study). The remaining authors have no conflicts of interest to disclose regarding this study.

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## References

- Santoro N, Komi J. Prevalence and impact of vaginal symptoms among postmenopausal women. *J Sex Med* 2009;6:2133–42
- Calleja-Agius J, Brincat MP. The urogenital system and the menopause. *Climacteric* 2015;18:18–22
- Salvatore S, Nappi RE, Parma M, et al. Sexual function after fractional microablative CO<sub>2</sub> laser in women with vulvovaginal atrophy. *Climacteric* 2015;18:219–25
- DiBonaventura M, Luo X, Moffatt M, et al. The association between vulvovaginal atrophy symptoms and quality of life among postmenopausal women in the United States and Western Europe. *J Womens Health (Larchmt)* 2015;24:713–22
- Gandhi J, Chen A, Dagur G, et al. Genitourinary syndrome of menopause: an overview of clinical manifestations, pathophysiology, etiology, evaluation, and management. *Am J Obstet Gynecol* 2016;215:704–11
- Sturdee DW, Panay N, International Menopause Society Writing Group. Recommendations for the management of postmenopausal vaginal atrophy. *Climacteric* 2010;13:509–22
- Bachmann G. Urogenital ageing: an old problem newly recognized. *Maturitas* 1995;22:S1–S5
- Makita K, Ohta H, Komukai S, et al. State of health-maintenance outpatient care among middle-aged and elderly patients 5 months after opening our classroom. *J Japan Menopause Soc* 1993;1:86–92
- Japanese Ministry of Health, Labor and Welfare. National Basic Survey on Living Conditions 2016. Available from: [www.mhlw.go.jp/toukei/list/20-21.html](http://www.mhlw.go.jp/toukei/list/20-21.html) (in Japanese) [last accessed 13 May 2020]
- Bachmann GA, Nevadunsky NS. Diagnosis and treatment of atrophic vaginitis. *Am Fam Physician* 2000;61:3090–6
- Cardozo L, Bachmann G, McClish D, et al. Meta-analysis of estrogen therapy in the management of urogenital atrophy in postmenopausal women: second report of the Hormones and Urogenital Therapy Committee. *Obstet Gynecol* 1998;92:722–7
- Genazzani AR, Schneider HP, Panay N, et al. The European Menopause Survey 2005: women's perceptions on the menopause and postmenopausal hormone therapy. *Gynecol Endocrinol* 2006;22:369–75
- Takamatsu K, Ohta H, Kasuga M, et al. Vaginal symptoms in Japanese postmenopausal women: comparison with other climacteric symptoms. *Climacteric* 2001;4:299–305
- Takamatsu K, Ito K, Ogawa M, et al. Vaginal symptoms among postmenopausal Japanese women—an analysis of an online survey. *J Jpn Soc Menopause Women's Health* 2013;21:36–41 (in Japanese)
- Nappi RE, Kokot-Kierepa M. Women's voices in the menopause: results from an international survey on vaginal atrophy. *Maturitas* 2010;67:233–8
- Pastore LM, Carter RA, Hulka BS, et al. Self-reported urogenital symptoms in postmenopausal women: Women's Health Initiative. *Maturitas* 2004;49:292–303
- Salonia A, Zanni G, Nappi RE, et al. Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence: results of a cross-sectional study. *Eur Urol* 2004;45:642–648; discussion 648
- Hansen BL. Lower urinary tract symptoms (LUTS) and sexual function in both sexes. *Eur Urol* 2004;46:229–34
- Møller LA, Lose G. Sexual activity and lower urinary tract symptoms. *Int Urogynecol J Pelvic Floor Dysfunct* 2006;17:18–21
- Oh SJ, Ku JH, Choo MS, et al. Health-related quality of life and sexual function in women with stress urinary incontinence and overactive bladder. *Int J Urol* 2008;15:62–7; discussion 67
- Sako T, Inoue M, Watanabe T, et al. Impact of overactive bladder and lower urinary tract symptoms on sexual health in Japanese women. *Int Urogynecol J* 2011;22:165–9