

## EPIDEMIOLOGICAL STUDY OF URGE URINARY INCONTINENCE AND RISK FACTORS IN CHINA

### Hypothesis / aims of study

To evaluate the prevalence and associated risk factors of urge urinary incontinence (UUI) in Chinese adult women.

### Study design, materials and methods

This is a cross-sectional study using the multi-staged random sampling method. The six surveyed areas included: Northwest China, Southwest China, North China, East China, Northeast China and South China, where 20,000 Chinese women aged 20 years or older were randomly selected and interviewed with the modified Bristol Female Lower Urinary Tract Symptoms (BFLUTS) questionnaires. The population prevalence rates of UUI were estimated and potential risk factors were identified.

### Results

19,024 cases were included in the analysis with 976 excluded, and a qualification rate of 95% (19024/20000). Of the women aged from 20 to 99 years (mean 45±16), the overall prevalence of UUI was 2.6%. The prevalence rate among Chinese adult women increased with age, from 1.3% for women aged 20-40 years to 5.7% for those aged 60 years or older. Age, waist circumference, constipation, chronic pelvic pain, history of gynecological diseases, and menopausal status were independent risk factors of UUI. Women aged 60 or above were 2.329 (95%CI: 1.419, 3.821) times more likely to suffer UUI as compared to women aged 20-40. Women in perimenopausal status or postmenopausal status were respectively 1.766 (1.176, 2.654) or 2.285 (1.535, 3.402) times more likely to suffer UUI as compared to women in normal menstruation. However, either parity or mode of delivery was not risk factor of UUI.

### **Logistic regression analysis models about independent risk factors of UUI**

Risk factors	UUI (%)	ariate model			Multivariate model		
		OR	95% C.I.		OR	95% C.I.	
			Lower	Upper		Lower	Upper
<b>Age decile</b>							
20~	1.3	1.0	-	-	1.0	-	-
40~	2.3	1.764	1.382	2.251	1.234	.841	1.812
60~	5.7	4.487	3.551	5.669	2.329	1.419	3.821
<b>Parity and mode of delivery</b>							
vaginal single delivered	1.6	1.0	-	-	1.0	-	-
Vaginal multiple delivered	3.9	2.422	1.941	3.022	1.350	.982	1.856
Cesarean	2.1	1.304	0.935	1.818	1.353	.857	2.134
nulliparity	1.6	1.008	0.693	1.467	1.384	.831	2.305
<b>Alcohol consumption</b>							
No	2.5	1.0	-	-			
Yes	2.7	1.087	0.905	1.307			
<b>Waist circumference</b>							
< 80cm	1.7	1.0	-	-	1.0	-	-
≥80cm	3.7	2.266	1.820	2.821	1.431	1.125	1.820
<b>Constipation</b>							
No	2.3	1.0	-	-	1.0	-	-
Yes	4.0	1.751	1.397	2.194	1.410	1.048	1.897
<b>CPP</b>							
Nonexistent	2.5	1.0	-	-	1.0	-	-
present	3.2	1.313	1.044	1.651	1.757	1.324	2.331
<b>History of Respiratory disease</b>							
Nonexistent	2.4	1.0	-	-			
present	3.0	1.249	0.712	2.193			
<b>Gynecological diseases</b>							
Nonexistent	2.4	1.0	-	-	1.0	-	-
present	3.5	1.501	1.094	2.059	1.511	1.086	2.101
<b>Pelvic surgery</b>							
Nonexistent	2.5	1.0	-	-			
present	2.3	0.910	0.724	1.145			

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**Menstrual condition**

normal menstruation	1.8	1.0	-	-	1.0	-	-
Perimenopausal status	2.8	2.028	1.457	2.824	1.766	1.176	2.654
Postmenopausal status	4.7	3.513	2.881	4.284	2.285	1.535	3.402

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**Interpretation of results**

Our study demonstrated that UUI is not very common in Chinese women aged 20 or over. From our study, age was an independent risk factor of UUI. Our results imply that the increasing occurrences of storage and voiding dysfunctions are closely associated with aging. However, UUI should not be considered an inevitable consequence of aging. Due to the limit of sample size, we deduce that the true prevalence and risk factors of UUI in China are probably underestimated. In addition, because this is a cross-sectional study, it is difficult to interpret the relationships between some risk factors. Prospective studies with more samples are necessary in the future. The cross-province survey of the prevalence of UUI provides us with a general profile of the disease among the general population in China. In future, we should place more emphasis on preventive measures, and pay more attention to risk factors rather than simply accepting UUI as a natural consequence of aging and being untreatable. More public education programs on the medical knowledge of UUI should be carried out among the Chinese people. Moreover, the treatment strategies need to be improved.

**Concluding message**

Our findings suggest that the prevalence of UUI is 2.6% among Chinese adult women. Age is a major independent risk factor of UUI.

**References**

1. Lifford KL, Townsend MK, et al. The epidemiology of urinary incontinence in older women: incidence, progression, and remission. *J Am Geriatr Soc.* 2008 Jul;56(7):1191-8
2. Rohr G, Støvring H, et al. Characteristics of middle-aged and elderly women with urinary incontinence. *Scand J Prim Health Care.* 2005 Dec;23(4):203-8
3. Møller LA, Lose G, et al. The prevalence and bothersomeness of lower urinary tract symptoms in women 40-60 years of age. *Acta Obstet Gynecol Scand.* 2000 Apr;79(4):298-305

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<b><i>Is this a clinical trial?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>Yes</b>
<b><i>Specify Name of Ethics Committee</i></b>	<b>Ethics Committee of Peking Union Medical College, Beijing</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>Yes</b>

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