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THE EPIDEMIOLOGICAL STUDY OF WOMEN WITH URINARY INCONTINENCE AND RISK FACTORS FOR STRESS URINARY INCONTINENCE IN CHINA

Hypothesis / aims of study
To evaluate the prevalence and associated risk factors of urinary incontinence in Chinese women.

Study design, materials and methods
In the cross-sectional survey, 20,000 Chinese women aged ≥ 20 years were randomly selected and interviewed with modified Bristol Female Lower Urinary Tract Symptoms (BFLUTS) questionnaires to estimate population prevalence rates and identify potential risk factors.

Results
19,024 cases were included in the analysis with 976 excluded, qualified rate 95% (19024/20000). Of the Chinese women aged from 20 to 99 years old, (mean 45±16), the overall prevalence of urinary incontinence(UI) was 30.9%. Estimates of stress urinary incontinence(SUI), urge urinary incontinence (UUI) and mixed urinary incontinence(MUI) prevalence were 18.9%, 2.6%and 9.4%, with a corresponding proportional distribution of 61%, 8% and 31%, respectively. The prevalence of MUI increased with aging, while the prevalence of SUI peaked in 50 years group, and the UUI in 70 years group. Only 25% patients have consulted doctors on this issue. Through multivariable logistic regression analysis, we identified age, vaginal delivery, multiparity, alcohol consumption, central obesity (female waist circumference≥80cm), constipation, chronic pelvic pain (CPP), history of respiratory disease, gynecological events, pelvic surgery, peri-menopausal and postmenopausal status as potential risk factors for SUI, among which age, vaginal delivery, multiparity are three major risk factors.

Interpretation of results
In our study, the overall prevalence of UI in Chinese women was 30.9%, which falls with the bounds of other national estimates, which ranged from 9 to 45% [4]. The reported prevalence of UI worldwide varies widely, according to different epidemiology studies. This variation is mainly due to differences in the definitions, target population, questionnaires design, and selection criteria [2]. The prevalence of each UI subtypes varies widely in previous studies, with the median 49% (24%-75%), 21% (7%-49%), 29% (11%-61%) for SUI, UUI and MUI [9]. In our survey, the prevalence of SUI, UUI and MUI were 18.9%, 2.6%, and 9.4%, lower than those mentioned aboved. The reason for these difference may be ethnic, physical and related risk factors. In our study, The proportion of SUI, UUI and MUI was 61%:8%:31%, consistent with the data in the literatures. Most of the studies of risk factors are cross-sectional. Parity, age, and obesity are the three most thoroughly studied factors [12]. In most studies, age is a strong risk factors for UI, but age-specific trends vary. Many epidemiological data showed BMI a definite risk factor of UI [16], but in our study, waist circumference was associated with SUI ($p<0.001$) whereas BMI wasn't. Waist circumference is index for measuring abdominal obesity. Its diagnostic cut point for abdominal obesity is≥85 cm in males and ≥80 cm in females [19]. The odd ratios (OR 1.38, 95%CI 1.25-1.52, $p<0.001$) showed significant difference between women with waist circumference <80 cm and≥80 cm, who suffered from SUI. In our study, the independent risk factors of SUI among Chinese women are constipation, alcohol consumption, menopause, history of respiratory disease, pelvic surgery, especially hysterectomy. This result was consistent with some, but not all, earlier studies [12, 16]. Moreover, we found that there is an association between chronic pelvic pain and SUI. However, it remains unclear whether SUI was the cause or effect of chronic pelvic pain (CPP). Our study demonstrated that UI is common in Chinese women aged 20 or over and that SUI is the most prevalent subtype. China is the country with large population, we can't survey every adult women in our study, so true prevalence of UI in china may be underestimated. In addition, this is a cross-sectional study, so it is difficult to interpret some risk factors relationship, more samples and prospective study are necessary in the future.

Concluding message
Our findings suggest that the prevalence of UI is high in China, with SUI as the most common subtype. Age, vaginal delivery and so on are risk factors for SUI.

References
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Specify source of funding or grant	**NONE**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Ethics Committee of Peking Union Medical College Hospital**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**