

The prevalence of stress urinary incontinence in women studying nursing and related quality of life

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Abstract

Urinary incontinence is a growing problem that affects millions of people worldwide. The purpose of this study was to assess the prevalence of stress urinary incontinence (SUI) in women studying nursing. Respondents completed a questionnaire assessing urinary incontinence, severity of symptoms and quality of life. Short forms to assess symptoms of distress for urinary incontinence and quality of life: UDI-6 and IIQ-7 have been used. The study's conclusions are as follows: 1) among the 113 interviewed women, stress urinary incontinence (SUI) was observed in 25% of respondents; this prevalence is similar to the age-matched population; 2) among the triggering factors mentioned in stress urinary incontinence the most frequent were: coughing, laughing and sneezing; 3) moderate impact of incontinence on quality of life has been shown, but this effect was not statistically significant.

Key words: stress urinary incontinence, prevalence, quality of life.

Introduction

Millions of women experience a leak or involuntary loss of urine. The most common types of urinary incontinence (UI) in women are stress urinary incontinence and urge urinary incontinence. Women with both problems have mixed urinary incontinence. Stress urinary incontinence (SUI) was defined by the International Urogynecological Association and International Continence Society as "complaint of involuntary loss of urine on effort or physical exertion (e.g. sporting activities), or on sneezing or coughing" [1, 2]. Stress urinary incontinence, also known as effort incontinence, is due essentially to insufficient strength of the pelvic floor muscles and caused by loss of support of the urethra. It is characterized by leaking of small amounts of urine during activities which increase abdominal pressure such as coughing, laughing, sneezing, climbing stairs, running and lifting. It can be a common and distressing problem, which may have a profound impact on quality of life, including sexual life. Stress urinary incontinence leads to decreased quality of life in sufferers, especially in women over 60 years old, and financial burdens for both the patient and the healthcare industry [3]. Urinary incontinence almost always results from an underlying treatable medical condition but is underreported to medical practitioners.

The prevalence of UI increases with age, with a typical rate in young adults of 20-30%, a peak around mid-

dle age (prevalence 30-40%) and a steady increase at the old age (prevalence 30-50%) [4]. Following Luber, SUI has an observed prevalence of between 4% and 35% [4]. Whereas the clinical definition of SUI has been established, the epidemiologic definition has not been established, leading to a broad disparity in reported prevalence rates [5]. In Hunskar *et al.* survey in four European countries of 17 080 community-dwelling women aged ≥ 18 years who responded, 35% reported involuntary loss of urine in the preceding 30 days; and SUI was the most prevalent type. The lowest prevalence of UI was in Spain (23%), while the prevalence was 44%, 41% and 42% for France, Germany and the UK, respectively [4]. Bidzan, according to statistics from inpatient and outpatient gynecological and urological departments stated that SUI occurs in approximately 35% of patients over 45 years [6].

Numerous risk factors for SUI have been identified. Aging, obesity, and smoking appear to have consistent causal relationships with the condition, whereas the roles of pregnancy and childbirth remain controversial [7]. A review of the literature shows that other factors predisposing to urinary incontinence are: genetic factors, female gender, white race, pregnancy, childbirth, hysterectomy, menopause, heavy physical work and grueling physical training [7-10]. On the other hand, it is well known that regular physical activity protects against SUI [8]. In the USA, in the National Health

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and Nutrition Examination Survey 2001-2002, data on UI in 2,875 adult women were estimated. The overall prevalence of stress, urge, mixed, and any UI was 23.7%, 9.9%, 14.5%, and 49.2%, respectively. Prevalence of SUI peaked at the fifth decade. Prevalence of urge and mixed UI increased with age. The largest number of risk factors and the strongest associations were found with severe UI. Age, ethnic background, and weight were significant risk factors common to all UI severity levels [11].

The aim of this study was: 1) to evaluate the prevalence of stress urinary incontinence (SUI) among women studying nursing, and 2) to assess the impact of incontinence on quality of life (QoL).

Material and methods

113 of 190 women studying nursing at a higher level completed the questionnaires. Inclusion criteria were: female gender, occupation (nurse), and lack of nervous system disorders affecting the function of the bladder. Exclusion criteria were: male gender, profession other than a nurse, and diseases of the nervous system affecting the function of the bladder. Respondents have been informed about the purpose of research, symptoms of SUI and that participation in this survey is anonymous and voluntary. The age of 113 subjects ranged between 25 and 55 years, average 40.5 years.

For evaluation of symptoms of distress for UI and QoL, two short questionnaires have been used: UDI-6 and IIQ-7. Urogenital Distress Inventory (UDI-6 Short Form) concerns the last three months. If the respondent answers “yes”, the next question is “how much does this bother you?”. Scoring is as follows: not at all = 1 point, somewhat = 2, moderately = 3, quite a bit = 4. Item 3 refers to SUI. To obtain the Index of Urinary Problems (IUP), the mean value of all the answered items must be divided by 6 and multiplied by 25. IUP could be in the range of 0 to 100 where 0 means no disturbance. The index in the range 1-25 means slight impairment, 26-50 – moderate, 51-75 – substantial and 75-100 – severe [12]. Incontinence Impact Questionnaire – Short Form 7 (IIQ-7) contains seven questions about the impact of urinary incontinence on QoL. Questions 1 and 2 relate to physical activity, questions 3 and 4 – travel, question 5 – social life/relationships, and questions 6 and 7 – emotional

health. Item responses are assigned values of 0 for “not at all”, 1 for “slightly”, 2 for “moderately”, and 3 for “greatly”. The average score of items answered is calculated. The average, which ranges from 0 to 3, is multiplied by 33 1/3 to put scores on a scale from 0 to 100. Score 0 means no problems. Urinary Incontinence Impact Indicator (UIII) in the range of 1-25 means a slight disturbance, 26-50 – moderate, 51-75 – substantial and 75-100 – severe [12]. For statistical analysis, chi square (χ^2) and Fischer’s test have been used.

Results

Stress urinary incontinence at least once a month was reported by 27 out of 113 respondents – this represented 25% of the respondents (Table I). Among 57 people aged 25 to 40 years, SUI occurred in 12 subjects (21%), and in a subgroup of 56 people aged 41 to 55 years, SUI occurred in 16 subjects, i.e. 28%. The problem of incontinence often concerned respondents aged ≥ 41 years, although these differences were not statistically significant [$\chi^2 p$ (1 vs. 2) = 0.3089, Fischer’s test p (1 vs. 2) = 0.4114] (Table 1). Stress urinary incontinence took 1 to 19 years, an average of 5.4 years.

As for circumstances of urine leakage: 23 out of 28 (i.e. 82%) subjects with SUI loosed urine due to the impact of coughing, laughing, or sneezing, whereas 15 subjects (53%) when climbing stairs, running or lifting (Table II).

The biggest distress associated with loosening of urine appeared when coughing, sneezing or laughing (Table III).

Urine incontinence often resulted in a feeling of frustration; this involved 19 patients of 28 (i.e. 68%). Frustration with UI was the most severe in 8 (i.e. 28.5%) of the respondents (Table IV).

The Urinary Incontinence Impact Indicator (UIII) of 28 respondents showed that in 4 (14%) subjects there was no impact of UI, slight impact occurred in 12 subjects (43%), moderate in 5 persons (18%), significant impact in 3 persons (11%), and severe in 4 respondents (14%).

Discussion

Based on the above results one can state that stress urinary incontinence (SUI) in the material occurred in 25% of 113 respondents. Stress urinary incontinence occurred more frequently between the age of 41 and 55 than at the age of 25-40, but not statistically sig-

Table I. SUI depending on age (n = 113)

	Age 25-40 years (n = 57)	Age 41-55 (n = 56)	Total (n = 113)	Significance
SUI	12 (21%)	16 (28%)	28 (25%)	
χ^2				$p = 0.3089$
Fisher’s test				$p = 0.4114$

Table II. Circumstances of urine leakage (n = 28)

Leakage of urine	Due to coughing, laughing or sneezing	During climbing stairs, running or lifting
SUI	23 (82%)	15 (53%)

Table III. Perceived distress associated with loosening of urine in UDI-6 (n = 28)

Symptom	Not at all	Somewhat	Moderately	Quite a bit	Total
1 Frequent urination	2 (7%)	0 (0%)	12 (43%)	2 (7%)	16 (57%)
2 Urine leakage associated with urgency	0 (0%)	6 (28.5%)	3 (11%)	7 (25%)	16 (57%)
3 Urine leakage related to coughing, sneezing, or laughing	0 (0%)	5 (18%)	9 (32%)	12 (43%)	26 (93%)
4 Urine leakage in drops	0 (0%)	5 (18%)	6 (21%)	8 (36%)	19 (68%)
5 Difficulty emptying bladder	0 (0%)	4 (14%)	5 (18%)	2 (7%)	11 (30%)
6 Pain or discomfort in the lower abdomen	0 (0%)	2 (7%)	4 (14%)	7 (25%)	13 (46%)
6a Pain relieved after emptying bladder (totally in 71%)					10 out of 14

Table IV. Impact of urine incontinence on Quality of Life in IIQ-7 (n = 28)

Impact	No	Not at all	Moderately	Greatly	Total
1 Household chores	0 (0%)	3 (11%)	2 (7%)	3 (11%)	8 (28.5%)
2 Physical recreation	0 (0%)	7 (25%)	0 (0%)	5 (18%)	12 (43%)
3 Entertainment	0 (0%)	3 (11%)	2 (7%)	4 (14%)	9 (32%)
4 Travel by car or bus	0 (0%)	3 (11%)	2 (7%)	5 (18%)	10 (36%)
5 Social activities	0 (0%)	2 (7%)	5 (20%)	3 (11%)	10 (36%)
6 Emotional health	0 (0%)	3 (11%)	4 (14%)	5 (18%)	12 (43%)
7 Feeling of frustration	0 (0%)	7 (25%)	4 (14%)	8 (28.5%)	19 (68%)

nificant. More respondents with SUI loosed urine under the impact of coughing, laughing, or sneezing, and less when climbing stairs, running or lifting. Results of short questionnaire UDI-6 showed the greatest distress associated with loosening of urine when coughing, sneezing or laughing. As for impact of urine incontinence measured in short questionnaire IIQ-7: many respondents reported feelings of frustration. The impact of UI on activity appeared to be low.

The prevalence of SUI in this survey (25% of the respondents) is similar to that reported for women at the age 25-55 in the literature on epidemiology of UI. It should be noted that a number of patients never meet the doctor [6]. Keyock and Newman indicate that UI is both underreported and undertreated. They outline the role of the nurse practitioner in identifying, diagnosing, managing, and treating SUI [3]. Nurses should encourage women to practice pelvic floor exercises, which are the best way of prevention SUI especially after delivery [13-20].

There is only one report in the literature referring to UI in nurses. Of 116,671 female nurses aged 25 to 42 years in 14 states of America, who in 1989, started the Nurses' Health Study II, in 2001, 64,650 women aged 36-55 years completed a mailed questionnaire. Participants reported urine leaking in 2001 and 2003. The 2-year incidence of incontinence was 13.7%. Incidence generally increased until the age of 50 years and then declined slightly in older women. Among women with incident incontinence at least weekly, the incidence of SUI increased until the age of 50 years (2-year incidence 1.7%), and the incidence of urge incontinence was stable across age groups (2-year

incidence 0.4%). Also, a minority (38%) mentioned leaking to their physician [21].

These are many clinimetrics methods of evaluation of UI. There are simplifications of the 19-item UDI and 30-item IIQ to 6 and 7 item short forms, respectively. The short form versions, made in 1995 by Uebersax *et al.*, may be more useful than the long form versions in many clinical and research applications [12, 22]. As for assessment of QoL related to UI, the most commonly instruments are: Incontinence Quality of Life (I-QoL), Incontinence Impact Questionnaire-short form (IIQ-7), and King's Health Questionnaire (KHQ) [23-26]. We stated that Urogenital Distress Inventory (UDI-6) was more useful to assess the problems associated with SUI for our study group than Incontinence Impact Questionnaire (IIQ-7) which is the questionnaire on quality of life. The questionnaire IIQ-7 showed a modest reduction in quality of life.

In the Prospective Urinary Incontinence Research (PURE) 6-mo observational study in 15 European countries, 9487 women was enrolled. Quality of Life was assessed at the enrolment visit using the urinary Incontinence Quality of Life questionnaire (I-QoL) and the generic EQ-5D. A single-item instrument was used to measure the degree of bother. Urinary incontinence severity was assessed using the Sandvik Index. Urinary incontinence was categorized into stress (SUI), mixed (MUI), and urge (UII) urinary incontinence by a patient-administered instrument (Stress and Urge Incontinence Questionnaire [S/UIQ]). Mean total I-QoL scores were significantly and independently associated with UI severity, nocturia, age, UI subtype, number of

selected concomitant medical conditions, length of suffering from UI before contacting a doctor, smoking status, ongoing use of UI medication, and country [27].

Dąbrowska *et al.* stated that physical activity is one of the major lifestyle-related determinant which directly or indirectly influences different life components during menopause [28]. Barnaś *et al.* evaluated the impact of selected socio-demographic factors on the course of menopause and their influence on women's quality of life in 256 menopausal women aged between 48 and 58. They concluded that menopause complaints, insufficient financial status, lack of hormonal therapy, and the lack of satisfaction with one's sexual life determine poor psychosocial and occupational functioning, which decreases the quality of life of women in menopause [29].

Conclusions

1. Among the 113 interviewed women, stress urinary incontinence was observed in 25% of respondents. This prevalence is similar to the age-matched population.
2. Among the triggering factors mentioned in stress urinary incontinence, the most frequent were: coughing, laughing and sneezing.
3. Moderate impact of incontinence on quality of life has been shown, but this effect was not statistically significant.

Disclosure

Authors report no conflicts of interest.

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