

# PRACTICE OBSERVED

---

## *Practice Research*

---

### Reported prevalence of urinary incontinence in women in a general practice

JACQUELINE V JOLLEYS

#### Abstract

To determine the prevalence of urinary incontinence and other urinary symptoms a questionnaire was sent to all women aged 25 and over and to women under 21 taking oral contraceptives registered with a rural practice (n=937); the questionnaire was completed by 833 women (89%). The overall prevalence of urinary incontinence was 41% (343/833); rates were lower in nulliparous and postmenopausal women (30/181 (17%) and 120/344 (35%) respectively) than parous and premenopausal women (313/652 (48%) and 225/479 (47%) respectively). Incontinence was significantly associated with perineal suturing after childbirth, being present in 201 of 376 (53%) women with sutures compared with 113 of 270 (42%) without. Of the 166 women with a history of minor gynaecological surgery, 100 had symptoms of incontinence, compared with 263 of the 657 (37%) without such a history. Incontinence was not related to type of delivery, and postnatal exercises for the pelvic floor were not beneficial.

Inappropriate leakage of urine is perceived by many women as common and therefore not serious; thus it is often not reported to the doctor. Nevertheless, the 6% of women who always require protection against leakage could be helped by treatment.

#### Introduction

Although few patients complain spontaneously of urinary incontinence, this problem may frequently be elicited during history

taking and on examination. Furthermore, urinary leakage during "pop mobility" and other physical exercise programmes is well recognised by tutors of these programmes.

The prevalence of urinary incontinence has rarely been studied in a population, only in selected age groups or communities.<sup>1-7</sup> A study by Thomas *et al* of the overall prevalence of urinary incontinence showed rates of 8.5% in women aged 15-64, 1.6% in men aged 15-64, 11.6% in women over 65, and 6.9% in men over 65.<sup>8</sup> Other studies have found rates of incontinence ranging from 30% to 57% in women: Brocklehurst *et al* reported an incidence of 57% in women aged 45-64<sup>6</sup>; Wolin found that 50.7% and Nemir and Middleton that 52% of nulliparous women had stress incontinence<sup>9</sup>; and Crist *et al* found that about 30% of nulliparous women aged 21-63 experienced inappropriate urine loss.<sup>4</sup> These variations may be due partly to differing definitions of and methods of eliciting the presence of incontinence. Furthermore, all these studies were carried out by people unknown to the patients.

Because of these discrepancies I carried out a study to determine the prevalence of urinary incontinence in women over the age of 25 in a rural general practice in Leicestershire. Incontinence was defined as inappropriate leakage of urine. The study was also designed to identify associated factors and to ascertain why some patients do not consult their general practitioner about urinary symptoms.

#### Methods

A questionnaire was formulated to ascertain the prevalence of urinary symptoms including incontinence. Patients were asked whether they experienced leakage of urine on coughing, laughing, exercise, lifting, climbing stairs, a full bladder, or other occasions and were asked to classify subjectively the frequency of occurrence of each symptom as never, sometimes (inappropriate urine loss less than twice a week), or often (incontinence several times a week). They were asked if they wore sanitary protection because of their symptoms. If these symptoms had not caused

---

Faculty of Medicine, University of Leicester, Leicester LE1 7RH  
JACQUELINE V JOLLEYS, MB, MRCP, lecturer in general practice

Correspondence to: The Surgery, Mill Lane, Belton, Leicestershire LE12 9JU.

---

them to seek medical advice the reasons for this were sought. Information was also collected about pregnancies of more than 12 weeks' gestation, mode of delivery, whether they had required perineal sutures after delivery, performance and duration of postnatal exercises, and contraception. Each patient's history of gynaecological surgery, particularly hysterectomy and operations to repair prolapse, was noted. Patients with neurogenic bladder were identified by questions relating to emptying of the bladder. The questionnaire was tested on 100 randomly selected women and modified in the light of the results.

A postal questionnaire and letter of explanation were sent to all women aged 25 and over and to the 30 women (all nulliparous) under 21 taking oral contraceptives who were registered with the practice on 1 May 1987. The practice's age-sex register was cross checked with the family practitioner committee's computerised records to ensure the accuracy of the population. After six weeks non-respondents were sent a reminder and help was offered to those who required it to complete the form. Those not wishing to take part were asked to return the blank form.

Data from the questionnaire were coded with a prepared coding manual, and each patient was given an identification number when data were transferred to a computer file. The data were analysed with the statistical package for the social sciences (SPSS-X), and Mann-Whitney U tests. Data obtained from the questionnaire were validated by telephone interviews with 20% of the women who had reported symptoms, who were also questioned about frequency and volume of urine loss. The data collected agreed with the questionnaires returned for 96% of these 105 women.

**Results**

Altogether 833 (89%) of the 937 women registered with the practice answered the questions on the questionnaire. No replies were received from 88 women, 10 women refused to take part, and six questionnaires were

infrequent to warrant treatment, 36 said that their symptoms were a usual female complaint, and 13 were too embarrassed to speak to their doctor about incontinence. Other reasons included that they believed their symptoms due to aging or childbirth and that they had not got round to consulting the doctor or were afraid of surgery. (Several women gave more than one answer.) Patients were more likely to consult their doctor the more the factors that precipitated their incontinence. Thus 10 (8%) of the 124 women with only one precipitating factor had consulted their doctor compared with five (15%) of the 33 with four and two (18%) of the 11 with six factors.

TABLE III—Symptoms of urinary incontinence in parous women (n=646\*) who did and did not have perineal sutures after delivery. Figures are numbers (percentages) of women

No of factors precipitating urinary incontinence	Sutures after delivery (n=376)	No sutures after delivery (n=270)
0	175 (47)	157 (58)
1	66 (18)†	41 (15)
2	61 (16)	30 (11)
3	43 (11)	16 (6)
4	19 (5)	13 (5)
5	6 (2)	10 (4)
≥6	6 (1)	3 (1)

\*Six women did not complete the question about suturing.

†p=0.007 For women with symptoms of urinary incontinence (Mann-Whitney two tailed test).

TABLE I—Prevalence of symptoms of urinary incontinence in women (n=833). Figures are numbers (percentages) of women

	Often†	Sometimes†	Never
On coughing	37 (4)	167 (20)	629 (76)
With full bladder	24 (3)	138 (17)	671 (80)
On laughing	18 (2)	114 (14)	701 (84)
On exercise	24 (3)	79 (9)	730 (88)
On lifting	9 (1)	55 (7)	769 (92)
On climbing stairs	3 (1)	44 (5)	786 (94)
On other occasions (usually sneezing)	14 (2)	73 (9)	746 (89)

\*Altogether 490 women reported that they never had symptoms of incontinence on any occasion.

†The groups "often" and "sometimes" are not mutually exclusive—for example, one woman might complain of having symptoms often on coughing but only sometimes on laughing.

TABLE II—Prevalence of symptoms of urinary incontinence related to age

Age group (years)	No of women	No (%) with symptoms of incontinence
<25	26	8 (31)
25-34	145	58 (40)
35-44	227	104 (46)
45-54	144	86 (60)
55-64	122	48 (39)
65-74	104	30 (29)
75-84	61	12 (20)
≥85	4	1 (25)
All age groups	833	343 (41)

returned marked "unknown at this address." Table I shows the reported incidence of urinary incontinence: 343 women (41%) reported inappropriate leakage of urine. The volume of leakage was described by 232 women as dampening of underwear; 63 required a change of underwear, and 48 always needed to wear protection against leakage. A total of 125 required protection during physical activity. The prevalence of symptoms tended to increase with increasing age up to age 54 but then declined (table II).

In answer to the question "Why have you not spoken to the doctor about your incontinence?" 166 women did not reply, 121 did not consider their symptoms to be a serious problem, 43 said that their symptoms were too

TABLE IV—Prevalence of symptoms of urinary incontinence in women who had and had not had gynaecological operations other than hysterectomy and repair. Figures are numbers (percentages) of women\*

No of factors precipitating urinary incontinence	Gynaecological operations other than hysterectomy and repair (n=166)	No gynaecological operations (n=657)
0	66 (40)	414 (63)
1	33 (20)	91 (14)
2	28 (17)	69 (11)
3	22 (13)	40 (6)
4	11 (7)	22 (3)
5	4 (2)	12 (2)
≥6	2 (1)	9 (1)

\*Excludes 10 women who had had hysterectomy. For women with symptoms of urinary incontinence  $\chi^2=35.6$ ,  $df=6$ ,  $p<0.0005$ ; Mann-Whitney two tailed test,  $p<0.0001$ .

Altogether 30 (17%) of the 181 nulliparous women were incontinent; eight (31%) of the 26 nulliparous women aged under 25 were incontinent. This compared with 313 (49%) of the 652 parous women ( $\chi^2$  test,  $df=1$ ,  $p<0.0001$ ). The incidence of urinary incontinence increased with parity, being 42% (66/157), 48% (129/268), 53% (72/136), and 56% (8/15) after one, two, three, and four pregnancies, respectively. There was no association between incontinence and type of delivery, but women who had had perineal sutures after delivery were more likely to have symptoms of incontinence than those who had not (table III).

A higher proportion of women who had done daily postnatal exercises (261/450; 58%) experienced leakage than of those who had not (73/197; 37%) (Mann-Whitney two tailed test,  $p<0.0001$ ). Furthermore, a lower proportion of women who had done daily exercises for less than six weeks (47/89; 53%) reported symptoms than of those who had done them for longer (73/101; 73%) (Mann-Whitney two tailed test,  $p=0.00057$ ).

Urinary symptoms were significantly more common in premenopausal than postmenopausal women, being present in 302 of the 479 (63%) premenopausal women compared with 175 of the 344 (51%) postmenopausal women (Mann-Whitney two tailed test,  $p=0.0017$ ). Altogether 225 (47%) of the premenopausal women had episodes of incontinence compared with only 120 (35%) of the postmenopausal women.

Hysterectomy (in 10 women) made no difference to the prevalence of symptoms, but symptoms were significantly more common among the 166

women who had had other gynaecological operations (table IV). Eight women had undergone surgical repairs for urinary incontinence and two required a ring pessary for a prolapsed uterus.

## Discussion

Incontinence was reported by 31% of nulliparous women under 25 years old, which is comparable with the finding of Crist *et al* of 30%.<sup>4</sup> The overall prevalence of incontinence in nulliparous women, however, was 17%, suggesting that the prevalence in older nulliparous women is lower. This contrasts with prevalences of 51% and 52% found in hospital based studies by Wolin and by Nemir and Middleton, respectively.<sup>5,9</sup> Brocklehurst *et al* reported that 57% of women aged 45-64 had urinary incontinence<sup>6</sup> whereas this study showed a prevalence of 60% in women aged 45-54 and 39% in those aged 55-64. The lower prevalence of incontinence with increasing age in postmenopausal women confirms a previous report of a decrease in incontinence with age.<sup>6</sup>

The overall prevalence of incontinence found in this study was supported by the results of the telephone validation study, which confirmed that most of the women who had reported having symptoms sometimes or often were regularly incontinent according to the definition used by Thomas *et al*<sup>8</sup> (twice or more per month). As urinary incontinence in women is so common it could perhaps be placed within the definition of normal urine control. However, the minority who require sanitary protection to avoid the embarrassment caused by inappropriate urine loss have clinical stress incontinence. Some women can usually cope adequately with incontinence but find that under certain circumstances—for example, during sporting activity—it becomes embarrassing. For them normal incontinence merges with the unacceptable clinical incontinence.

Urinary incontinence is believed to be associated with parity. Thomas *et al* reported a higher prevalence in women who had had up to three babies compared with nulliparous women, but no appreciable difference occurred within that parous group.<sup>8</sup> Incontinence was more common among women who had had four or more babies. This study found a linear increase in incontinence with increasing parity. Interestingly, most of the older women of high parity had never been incontinent. In the past women wore supporting garments, did more heavy work in the home, and "lay in" for longer in the puerperium. Perhaps these historical differences in practices associated with pregnancy could explain this finding.

There seemed to be no difference in the prevalence of incontinence after normal childbirth compared with forceps delivery or caesarean section. The pregnancy and not the mode of delivery seems to predispose women to incontinence. Results relating to type

of delivery were inconclusive as the number of abnormal deliveries was small and only the first birth could accurately be associated with the onset of incontinence.

The seemingly adverse effect of exercises for the pelvic floor gives rise to concern. The prevalence of incontinence increased when these exercises were done daily and over a long time. Possibly women who had pre-existing leakage conscientiously did the exercises whereas women without problems were less conscientious. The effectiveness of such exercises needs to be re-examined. Perhaps they should be taught differently and supervised while being done. Were urinary incontinence identified during pregnancy or at preconception counselling the exercises could be started earlier, which might ameliorate urinary incontinence. Further study is required to determine the effectiveness of prenatal exercises. As minor gynaecological surgery is related to an increased prevalence of incontinence operative techniques may damage the pelvic floor.

These results have several implications for clinical practice. If general practitioners asked about incontinence more cases would be detected and this embarrassing and inconvenient complaint, necessitating permanent protection against leakage in 6% of all women, could be alleviated.

I thank Alison Kitchener and Anne Heighton for collecting the data; Carol Jagger for help with statistics and computing; Professor Robin Fraser, Professor Mark Castleden, and Richard Wakeford for their advice and help, my partner, John Jolleys, for his invaluable help and encouragement; and Bernadette Hayes for typing the report.

## References

- 1 Holding U, Pedersen KH, Sidenius K, Hedegard L. Urinary incontinence in 45 year old women—an epidemiological survey. *Scand J Urol Nephrol* 1986;20:183-6.
- 2 Samsioe G, Jansson I, Mellstrom D, Svanborg A. Occurrence, nature and treatment of urinary incontinence in a 70 year old female population. *Maturitas* 1985;7:335-42.
- 3 Campbell AJ, Reinken J, McCash L. Incontinence in the elderly: prevalence and prognosis. *Age Ageing* 1985;14:65-70.
- 4 Crist T, Singleton HM, Koch GG. Stress incontinence and the nulliparous patient. *Obstet Gynecol* 1972;40:13-7.
- 5 Wolin LH. Stress incontinence in the young healthy nulliparous female subject. *J Urol* 1969;102:545-9.
- 6 Brocklehurst JC, Fry J, Griffiths LL, Kalton G. Urinary infection and symptoms of dysuria in women aged 45-65 years: their relevance to similar findings in the elderly. *Age Ageing* 1972;1:41-7.
- 7 McGrother C, Clarke M, Castleden M, Duffin H. Do the elderly need better incontinence services? *Community Med* 1987;9:62-7.
- 8 Thomas TN, Plymat KR, Blannin J, Meade TW. Prevalence of urinary incontinence. *Br Med J* 1980;281:1243-5.
- 9 Nemir A, Middleton RP. Stress incontinence in young nulliparous women. *Am J Obstet Gynecol* 1984;68:1166-8.

(Accepted 26 January 1988)

## ONE HUNDRED YEARS AGO

A HOSPITAL physician has drawn our attention to the case of a child under his care. The mother brought the girl, aged 11, to the hospital on account of her becoming liable to "attacks" in which she either "turns foolish" or drops down. The case proved to be one of minor epilepsy (*petit mal*). On a recent occasion, while getting coals for her mother from the cellar, she was seen to fill her shovel, then walk to the end of the street, holding the coals before her till she came to herself. Last week, when her father was having his dinner, she combed her hair and put the combings on his plate. The mother says that she often "loses herself," and stands looking vacantly before her; in such conditions she does not answer a question, or move when touched. The child looked fairly nourished, but was rather anaemic; she answered questions well, and complained of headache. This girl attends school and is in the third standard; it appears that, on more than one occasion, when in the foolish, vacant state, the teacher has struck the child, doubtless in ignorance of the cause of her apparent stupidity; happily, however, the child has not yet been removed from school. It is not upon the individual teacher that we would

cast a word of blame, still we cannot but think that a system in training and supervising teachers which allows of such mistakes ought to be reformed. The introduction of two to three medical advisers amongst Her Majesty's school inspectors would form an authority capable of following up and explaining such cases to teachers, preventing repetition of direct, though unintentional, cruelty. Occasional visits to certain schools by a medical inspector, with power to report, would do much to increase the care taken of feeble-brained children; it would lessen the responsibility of teachers in making exemptions, and they would be grateful for the assistance. As to this individual child, it is well that it should be educated and cared for; if left uneducated mental degeneration will follow. Should the child be so fortunate as to be removed to an asylum, she would probably be placed in a well ordered class in the asylum school. Why should not suitable classes for such feeble children be provided for day scholars?

(*British Medical Journal* 1888;ii:707)