

# The prevalence and severity of urinary incontinence in women

J. W. G. YARNELL AND G. J. VOYLE

*From the Medical Research Council Epidemiology Unit, Cardiff*

C. J. RICHARDS

*From the Department of Gynaecology, Caerphilly Miners Hospital*

T. P. STEPHENSON

*From the Department of Urology, Cardiff Royal Infirmary*

**SUMMARY** One thousand and sixty women aged 18 or over, randomly selected from a defined geographical area in South Wales, were interviewed at home about their urinary symptoms. Ninety-five per cent co-operated, of whom 45% admitted to some degree of incontinence. 'Stress' incontinence was reported by 22% of women, 'urge' incontinence by 10%, and both types combined—'complex'—by 14%. In most women urinary loss was both small and infrequent but 5% of all women experienced a loss sufficient to necessitate a change of clothes; in 2.6% such loss occurred daily. Over 3% of all women reported that incontinence interfered with their social or domestic life but only half of these had sought medical advice.

Urinary incontinence is a troublesome and probably underreported<sup>1</sup> disorder in women. Its prevalence in the general community is unknown. The purpose of the present report is to measure the prevalence and severity of incontinence, and to estimate its social consequences among women from a South Wales community.

## Method

A random sample of 1140 women was drawn from the electoral register for a defined geographical area in South Wales centred on a light industrial town (population 38 000). Each of the selected women was sent a letter explaining the study and then visited by one of five female interviewers who had been trained by the first author in interviews in a cervical cytology clinic. A standard questionnaire,\* which had been developed for an earlier survey,<sup>2</sup> was used throughout. In order to minimise embarrassment, questions were asked first on general medical history and then on urinary symptoms and incontinence. These latter questions referred to a period of 12

months before each interview and unless otherwise stated the results refer to the prevalence of incontinence during a period of 12 months.

A symptomatic classification of the type of incontinence was derived from a section of the questionnaire. This is similar to that used in a study in the Middlesex Hospital<sup>3</sup> and in another investigation in the same hospital (Osbourne J, unpublished observations). Urge incontinence was recorded as a positive response to the questions 'Do you ever have to rush to the toilet to pass water?' and 'If you have to rush to the toilet do you ever lose any water before reaching the toilet?' Stress incontinence was defined as a positive response to the question 'Do you lose urine at any other time; for example, when you cough, laugh, or sneeze, etc.?' Complex incontinence was defined as any combination of the urge and stress types. Each of the three types, as presented in the following results, is mutually exclusive of the others.

## Results

Of the 1140 women selected, 66 had left the area and 14 had died by the time of the survey. Of the remaining 1060 women, 38 refused to co-operate.

\*Copies of the appropriate sections of the questionnaire can be obtained from the authors.

Complete data were available for 1000 (95%) of the 1022 women interviewed, and this report is based on these data.

Table 1 shows the distribution of incontinent women by type of incontinence and age. Forty-five per cent reported some degree of incontinence during the previous 12 months; this was usually stress incontinence. Both complex and urge incontinence tended to be more common in the older age groups but the prevalence of pure stress incontinence fell among those aged over 60.

In order to obtain some measure of the significance of urinary symptoms to the women themselves all women were asked whether they considered that they had any problems with 'waterworks'. This question preceded all questions on urinary symptoms including those on incontinence. Table 2 shows the distribution of responses to this question by continence and type of incontinence.

Ninety-four women reported some problems, the

majority of whom (71) were incontinent. Of the particular types of incontinence, complex was most commonly associated with the reporting of urinary problems. The commonest symptoms associated with these problems in continent women were frequency and dysuria.

Two indices were used to define the severity of incontinence: frequency of incontinent episodes and volume of urine lost. Table 3 shows these results by type of incontinence.

Two hundred and eighty women, 28% of the total sample surveyed or 64% of all the incontinent women, complained of only slight incontinence at infrequent intervals. However, 26 (2.6%) of all the women surveyed complained of daily or continuous wetting requiring the changing of clothes. The data for the separate types of incontinence indicated that on the whole the stress type alone was a relatively common but usually mild complaint, whereas the complex type was less common but more severe. The

Table 1 Numbers of incontinent women and prevalence of incontinence by type and age

Type of incontinence	Age groups (years)							All ages (1000)
	17-24 (126)	25-34 (217)	35-44 (151)	45-54 (196)	55-64 (152)	65-74 (111)	75 and over (69)	
(Total numbers)								
Urge	11 (9%)	10 (5%)	15 (10%)	17 (9%)	15 (10%)	14 (13%)	10 (14%)	92 (9%)
Stress	14 (11%)	40 (18%)	37 (24%)	60 (31%)	36 (24%)	19 (17%)	12 (17%)	218 (22%)
Complex	5 (4%)	17 (8%)	24 (16%)	32 (16%)	23 (15%)	15 (13%)	19 (28%)	135 (14%)
All incontinent women	30 (24%)	67 (31%)	76 (50%)	109 (56%)	74 (49%)	48 (43%)	41 (59%)	445 (45%)

Table 2 Distribution of women by type of incontinence, continence, and presence or absence of urinary problems

Type of incontinence	Urinary problems		Total*
	Present	Absent	
Urge	15 (16%)	77 (84%)	92 (100%)
Stress	17 (8%)	199 (92%)	216 (100%)
Complex	39 (29%)	96 (71%)	135 (100%)
All incontinent women	71 (16%)†	372 (84%)	443 (100%)
Continent women	23 (4%)	529 (96%)	552 (100%)

\*Information not recorded for five subjects.

† $\chi^2 = 40.4$  1df  $p < 0.001$  (comparison of all incontinent women with continent women).

Table 3 Numbers of incontinent women by type of incontinence, amount of urine voided, and frequency of occurrence

Type of incontinence	'A teaspoonful or less'			'Wetting of clothes'			Total*
	Less often than weekly	Weekly or more often	Daily or continuous	Less often than weekly	Weekly or more often	Daily or continuous	
Stress	179	15	9	7	3	4	217
Complex	49	35	6	9	19	16	134
All incontinent women	280	59	23	20	24	26	432

\*Severity not recorded for 11 subjects with urge, one with stress, and one with complex incontinence.

data also showed that there were severely incontinent women at all ages, and while severity did appear to increase marginally with age, the greatest number (in contrast to the proportion) of severe\* cases occurred in the age group 45-54.

Further questions in the survey dealt with the social and medical consequences of incontinence (Table 4). Some interference with social or domestic

incontinence and in almost 3% this was sufficient to require the changing of clothes.

Pregnant women were not excluded from this study, but of the 19 women known to be pregnant only six reported incontinence and this was usually of a trivial nature.

A number of published studies have given prevalence estimates for urinary incontinence.<sup>4-7</sup>

Table 4 *Social and medical implications of incontinence*

<i>Interferes with social life</i>	<i>Interferes with social and domestic life</i>	<i>Causes continual embarrassment</i>	<i>All incontinent women</i>	<i>Consulted GP only</i>	<i>Referred to a specialist</i>	<i>Consulted nurse</i>	<i>All incontinent women</i>
12	10	13	433*	21	18	1	441†

\*Social consequences not recorded for 12 women, the majority with senile dementia in long-term accommodation.

†Medical consultations not recorded for four women.

life was reported by 35 women, of whom 13, or just over 1% of the total population sample (3% of all with incontinence), admitted to almost continual embarrassment. Among these 13 women were some who experienced a continual fear that they might, at any moment, be incontinent, and whose way of life was restricted as a result.

The affected women were also asked what medical action they had taken. Only one said she had consulted a nurse, but 39, or almost 9% of those with incontinence, had consulted a GP. Of these, 18 had been referred to a specialist.

One-third of women who reported interference only with their social life said that the incontinent episodes occurred less often than weekly. Women reporting interference with their social and domestic life, and those with continual embarrassment, usually experienced such episodes weekly or more often. Of the 35 incontinent women reporting interference with social life, only half had consulted a medical practitioner.

### Discussion

Incontinence of urine is clearly a very common occurrence in women. However, the majority of affected women in our study had minor degrees of incontinence. Thus, 45% of all women appeared to have suffered at least one episode during the previous year, but in almost 70% of these the occurrence was less than weekly. Almost half the affected women stated that they were incontinent only under situations of stress (coughing, laughing, etc.). On the other hand, over 5% of women had daily

However, all but one of these studies have been based on selected subjects and all use slightly different definitions of incontinence. The study of Thomas *et al*<sup>7</sup> was based on a population sample but used a postal questionnaire. Therefore direct comparisons with our data may be invalid. Nevertheless, estimates of prevalence in these studies agree very broadly with our own. In our study we were able to examine the extent of observer variation. The prevalence of incontinence reported by each interviewer ranged from 29% to 51% but three interviewers questioned 73% of all subjects and their prevalence figures ranged only from 49% to 51%.

Incontinence can be a distressing condition for affected women, but the threshold of tolerance of symptoms is wide. This was noted in several instances by different interviewers and although only 35 women reported social incapacity caused by incontinence (Table 4), a total of 71 incontinent women reported urinary problems (Table 2). This suggests that the prevalence of 'significant' urinary incontinence in the general population of women is between 3.5% and 7.1%.

It is difficult to estimate how much help could be given to these women. Only a small proportion of those affected appear to seek medical help, and this may reflect both reluctance to discuss the condition and a low expectation of benefit from treatment. Further work is clearly needed on the natural history of the disorder and the evaluation of existing treatments.

\*Defined by frequency of incontinent episodes (weekly or more often).

We thank Professor A. W. Asscher for encouragement and support and our fieldworkers Mrs. Lynne Court, Jillian Evans, Edith Pitman, Margaret Thomas, and Sheila Williams. We gratefully acknowledge the advice of Mr. Peter Sweetnam on the statistical analysis.

Reprints from Dr. John Yarnell, MRC Epidemiology Unit (South Wales), 4 Richmond Road, Cardiff CF2 3AS.

#### References

- <sup>1</sup>Anonymous. Incontinent women. *Lancet* 1977; **i**: 521–2.
- <sup>2</sup>Yarnell JWG, St. Leger AS. The prevalence, severity and factors associated with urinary incontinence in a random sample of the elderly. *Age Ageing* 1979; **8**: 81–5.
- <sup>3</sup>Jequier AM. Urinary symptoms and total hysterectomy. *Br J Urol* 1976; **48**: 437–41.
- <sup>4</sup>Wolin LH. Stress incontinence in young healthy nulliparous female subjects. *J Urol* 1969; **101**: 545–9.
- <sup>5</sup>Nemir A, Middleton RP. Stress incontinence in young nulliparous women. *Am J Obstet Gynecol* 1954; **68**: 1166–8.
- <sup>6</sup>Brocklehurst JC, Fry J, Griffiths LL, Kalton G. Urinary infection and dysuria in women aged 45–64 years: their relevance to similar findings in the elderly. *Age Ageing* 1972; **1**: 41–7.
- <sup>7</sup>Thomas TM, Plymat KR, Blannin J, Meade TW. Prevalence of urinary incontinence. *Br Med J* 1980; **281**: 1243–5.