



The UNIVERSITY
of NEWCASTLE

Research Centre for Gender and Health

***Characteristics of Australian women with
incontinence according to incontinence severity and
treatment-seeking behaviour***

Results from The Incontinence Substudy
of the
AUSTRALIAN LONGITUDINAL STUDY
OF WOMEN'S HEALTH

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February, 2004

women's
health
australia


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Take-Home Message

This report provides an analysis of data collected as part of a substudy of the Australian Longitudinal Study on Women's Health, focusing on women in three age groups who report "leaking urine". It focuses on incontinence severity and on whether or not women had sought treatment.

Most women in the survey had "mixed" (usually stress and urge) incontinence. Treatment-seeking was primarily from GPs and the most common treatment tried was pelvic floor exercises.

Treatment-seeking from health professionals, the use of a range of types of protection, and trying numerous treatments were all more common among those women with "severe" incontinence. Those with "sever" incontinence were less satisfied with the treatments they had tried. These women were also more likely to be willing to pay for treatment, and specified a higher mean amount as reasonable.

Women with private health insurance, those who had no difficulty managing on their income, and those who spoke English at home were more likely to have sought treatment, even though these factors were not associated with the severity of the problem.

Background

The Australian Longitudinal Study of Women's Health (ALSWH) is a study of the health and well-being of Australian women. ALSWH participants were recruited in 1996 through random selection from the Medicare database, and comprise women from three age cohorts: young (aged 18-23 years at recruitment), mid-age (45-50 years) and older (70-75 years). Analysis of the 1996 survey data of the ALSWH found the proportion of women reporting 'leaking urine' in the last twelve months was 12.8% (95% CI 12.2-13.3) in the young cohort (then aged 18-23, N = 14, 761), 36.1% (95% CI 35.2-37.0%) in the mid-age cohort (aged 45-50, N = 14,070), and 35% (95% CI 34.1-35.9) in the older cohort (aged 70-75, N = 12, 893) (Chiarelli & Brown, 1999).

The findings presented here are from a substudy conducted in 1999 of women who had reported "leaking urine" in the 1996 survey. Two papers have been published on the findings from this substudy; one categorising the type and severity of urinary incontinence in each of the three age cohorts (Miller, Brown, Russell & Chiarelli, 2003), and another investigating avoidance, management and health service utilisation for incontinence among women in the mid-age and older cohorts (Miller, Brown, Smith & Chiarelli, 2003). The purpose of the analysis presented here is to investigate the characteristics of women with a history of incontinence according to the severity of their incontinence and whether they have sought treatment or advice for their incontinence from a health professional.

Methods

Sample

The sample for this study comprised 1500 women who were current participants in the Australian Longitudinal Study of Women's Health (ALSWH). Five hundred participants who reported leaking urine 'often' in the baseline survey were randomly selected from those in each of the mid-age and older cohorts. In the young cohort, women who reported leaking urine 'sometimes' were included in the sampling frame, since insufficient women in the young cohort reported leaking urine 'often' (n = 141).

A survey package containing an invitation letter, 16-page detailed survey of incontinence, and reply paid envelope was mailed to each participant. Non-respondents were addressed up to three additional times (twice by mail, followed by telephone contact where required).

Measures

A screening question asked whether the participant had ever leaked even small amounts of urine (to confirm a history of incontinence and eligibility for inclusion). Eligible respondents were defined as 'presently incontinent' if they had leaked even small amounts of urine in the previous month. Only those who had leaked at least small amounts of urine in the past month were included in measurement of type and severity; those who had not are thus excluded from the analysis presented here.

Incontinence type and severity

Four types of incontinence have been previously defined: stress incontinence, urge incontinence, 'other' incontinence, or any combination of these types (referred to as 'mixed' incontinence). Stress incontinence typically presents when an increase in intra-abdominal pressure is greater than the maximum urethral closure pressure that can be maintained by the external continence mechanisms. This type is usually indicated by positive responses to questions about leakage associated with activities such as coughing, laughing or sneezing, bending to pick something up, walking up and down stairs, and engaging in sexual intercourse (Wall et al., 1993). Urge incontinence typically presents as urinary leakage due to involuntary contractions of the detrusor muscle (causing the feeling of urgency to void which is so immediate and intense that urine is leaked before a toilet can be reached). It is indicated by positive responses to questions about leaking urine when being woken from sleep by the need to urinate, having hands in water, and having to wait to use the toilet (Gunthorpe, 1998). 'Other' incontinence includes overflow incontinence which occurs with overdistention of the bladder (Walters, 1989), and neurogenic incontinence which is associated with conditions such as spinal cord injury, multiple sclerosis, Parkinson's disease, or stroke (Wall et al., 1993).

A 14-item scale for ascertaining incontinence type and measuring type-specific severity was developed for the incontinence substudy from the 12-item scale used by Gunthorpe (1998), and the severity index validated by Sandvik et al. (1993). The 14 items comprised 3 subscales relating to stress incontinence (7 items), urge incontinence (5 items) and other incontinence (2 items). Participants reported symptoms they had experienced during the last month, with a frequency rating of 'rarely', 'sometimes', or 'often'. For each symptom they had experienced, they were asked to evaluate the

amount of urine leaked as either 'drops or just a little' or 'more than just drops'.

Women reporting any symptom within a subscale were classified as having that type of incontinence. Thus, women were classified as having stress, urge, or 'other' incontinence, or mixed incontinence (indicating the presence of symptoms of two or more of the scales).

A severity score for each symptom was calculated as the product of scores assigned to the symptom frequency (0 = not reported, 1 = rarely, 2 = sometimes, 3 = often) and urine volume (1 = drops or just a little, 2 = more than just drops) (Sandvik et al., 1993). Where symptom frequency was reported in the absence of urine volume, the most conservative amount was assumed (i.e. 'drops or just a little'). An overall incontinence severity score was calculated as the sum of scores for all 14 items (range of possible scores 1-84). Based on the distribution of scores for incontinent women in all 3 age groups, scores were assigned to 2 categories of approximately equal size: 'low' severity (score of 1-22) and 'high' severity (≥ 23) incontinence.

Health service use

Women were asked a single-item question "Have you sought help or advice from a health-care professional about how best to manage your leaking urine?" with response options 'yes' or 'no'. Women who reported having sought treatment were asked to indicate which health professionals they had consulted and which tests they had undergone for incontinence or bladder control problems. They were also asked to indicate which treatments for improving bladder control had been recommended to them, and how satisfied they were with the outcome of each on a scale from 1 (very satisfied) to 4 (very dissatisfied). Responses regarding satisfaction

were recoded as 'very/moderately satisfied' or 'very/moderately dissatisfied'.

Protection Used

Women were asked to nominate which of various types of protection they used against leaking urine (ordinary panty liners; ordinary sanitary pads; incontinence pads; tissues or toilet paper; a vaginal device). Multiple responses across types of protection were possible.

Willingness to pay for treatment

The survey also contained questions designed to assess women's willingness to pay for incontinence treatment. These included an item that asked "If a treatment was available to cure your bladder control problem, would you be willing to pay for it out of your own pocket?" with response items of 'yes' or 'no'. Those who answered 'yes' were also asked to indicate how much they would be willing to pay for treatment per week, using an open-ended question.

Sociodemographic variables

Questions regarding private health insurance for both hospital cover and ancillary services were included in the substudy. Responses to these items were used to categorise women in one of four categories of health insurance – 'no private health insurance'; 'covered by Veterans' affairs'; 'private insurance for hospital only'; or 'private insurance for hospital and ancillary services'.

Data on each participant's ability to manage on their income and language spoken at home were obtained from the ALSWH 1996 survey. Women were asked 'How do you manage on the income you have available?', with response options of 'it is impossible', 'it is difficult some of the time', 'it is not too bad', and 'it is easy'. Ability to manage on income was categorised

as 'impossible/difficult', 'not too bad', or 'easy'. Self-reported language spoken at home was categorised as 'English speaking' or 'Non English-speaking'.

Data Analysis

Cases with missing values for variables required for stratification or inclusion in chi-square analysis were excluded on an analysis-by-analysis basis. Differences between groups (sought treatment/did not seek treatment; high/low severity) in the mean reported amount women were willing to pay for incontinence treatment were tested using 2-tailed independent samples t-tests (equal variances not assumed). The distribution of a number of characteristics (age group, incontinence type, insurance status, ability to manage on income, types of protection used, willingness to pay for incontinence treatment) were compared for those with low and high incontinence severity, stratified by whether they had sought treatment or not, using chi-Square analysis (Part A). The proportion of women who had approached different health professionals, undergone various testing procedures for incontinence, tried various treatments for incontinence and were satisfied with the outcome of treatments used were also compared between those with high and low severity among those who had sought treatment (Part A). For Part B of the analysis, distributions were compared for those who had and had not sought treatment, stratified by incontinence severity. In addition, the proportion of women with high incontinence severity was compared between those who had and had not approached each type of health professional, had or had not undergone each testing procedure for incontinence, had or had not tried each treatment for incontinence, and were or were not satisfied with the outcome of each treatment (Part B). Alpha was set at 0.05 for all statistical analysis.

Results

The survey was completed by 50% of women sampled in the young cohort, 83% of the mid-age sample, and 80% of the sample of older women. Of those sampled in the young, mid-age, and older cohorts, 3.4%, 0.4%, and 1.2% respectively were ineligible for inclusion as they reported “never having leaked even small amounts of urine” (a further 2 older women were found to be deceased). Combining all age groups, 89% of those eligible said they had leaked urine in the month prior to the survey (11% reported leakage but not recently). Women were significantly more likely to have leaked in the last month if they were mid-aged (95.4%) or older (95.0%) compared with women in the young cohort (77.4%; $\chi^2 = 68.98$, $df = 2$, $p < 0.001$).

The characteristics of eligible women in the resulting sample are shown in Table 1. The majority of women were defined as having ‘mixed’ incontinence type, and 43.6% were categorised as having ‘high’ severity incontinence. Almost half of the sample reported that they had consulted a health professional for help or advice about leaking urine. More than one third of women had private health cover for both hospital and ancillary health services, although 46.7% had no private health insurance. The majority of the sample spoke English at home, and 42.4% reported that it was impossible or difficult to manage on their available income.

Table 1 Characteristics of women in the incontinence substudy sample (N = 1051).

		N	%
Age group	Young	241	22.9
	Mid-age	415	39.5
	Older	395	37.6
	TOTAL	1051	100.0
	<i>Missing</i>	0	0.0
Incontinence type	Stress only	51	4.9
	Urge only	32	3.0
	Other only	3	0.3
	Mixed	848	80.7
	TOTAL	934	88.9
	<i>Missing</i>	117	11.1
Incontinence severity	High	458	43.6
	Low	476	45.3
	TOTAL	934	88.9
	<i>Missing</i>	117	11.1
Sought treatment	Yes	497	47.3
	No	402	38.2
	TOTAL	899	85.5
	<i>Missing</i>	152	14.5
Private health insurance	None	491	46.7
	Veteran's cover	56	5.3
	Hospital cover	100	9.5
	Hospital & Ancillary	361	34.3
	TOTAL	1008	95.9
	<i>Missing</i>	43	4.1
Language spoken at home	English	847	80.6
	Other	172	16.4
	TOTAL	1019	97.0
	<i>Missing</i>	32	3.0
Ability to manage on income	Impossible/difficult	446	42.4
	Not too bad	441	42.0
	Easy	151	14.4
	TOTAL	1038	98.8
	<i>Missing</i>	13	1.2

Part A Differences between those with 'high' and 'low' severity, stratified by having sought treatment.

The distribution of age groups among those with high and low incontinence severity, stratified by whether or not they had sought treatment for their incontinence, is shown in Table 2. There was a significantly higher proportion of young women among those with low severity compared with those with high severity incontinence, and the age difference was greatest among those who had not sought treatment. In other words, women with incontinence are likely to be middle-aged and older, rather than young, but young women who experience incontinence are somewhat *more* likely to have sought treatment than the other age groups.

Table 2 Age distribution (%) of those with high and low incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total	χ^2 **
	%	%	%	
Sought treatment	N = 258	N = 196	N = 454	
Young	4.7	12.8	8.1	9.83*
Mid-age	49.6	46.4	48.2	
Older	45.7	40.8	43.6	
Have not sought treatment	N = 136	N = 212	N = 348	
Young	28.7	51.9	42.8	21.07*
Mid-age	41.2	22.2	29.6	
Older	30.1	25.9	27.6	
All***	N = 458	N = 476	N = 934	
Young	11.1	28.6	20.0	46.94*
Mid-age	48.7	34.9	41.6	
Older	40.2	36.6	38.3	

*p<0.05

** Computed for a 2 (severity) x 3 (age group) table.

*** The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases is greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

The distribution of incontinence type according to incontinence severity, stratified by treatment seeking behaviour, is shown in Table 3. All women with high severity had ‘mixed’ incontinence type. Because of this, Table 3 has a number of “empty” cells, and calculation of a chi-square index for statistical testing is inappropriate here. Among those with low severity, ‘mixed’ incontinence was also more prevalent than other incontinence types, and this was consistent, regardless of whether they had sought treatment for incontinence. In other words, all women with high severity, and most with low severity, experienced ‘mixed’ incontinence and this was not related to treatment-seeking.

Table 3 Distribution (%) of type of incontinence among those with high and low incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total
	%	%	%
Sought treatment	N = 258	N = 196	N = 454
Stress	0.0	9.2	4.0
Urge	0.0	7.7	3.3
Other	0.0	1.0	0.4
Mixed	100.0	82.1	92.3
Have not sought treatment	N = 136	N = 212	N = 348
Stress	0.0	12.3	7.5
Urge	0.0	5.2	3.2
Other	0.0	0.5	0.3
Mixed	100.0	82.1	89.1
All*	N = 458	N = 476	N = 934
Stress	0.0	10.7	5.5
Urge	0.0	6.7	3.4
Other	0.0	0.6	0.3
Mixed	100.0	81.9	90.8

* The proportions presented for ‘all’ are based on the sample before stratification by having sought treatment. The number of cases is greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

Type of health insurance is compared for those with high and low severity in Table 4, stratified by having sought treatment. There was no significant difference in the proportion of women with each type of private health insurance between those with high and low severity. However, a greater proportion of those with high severity who had *not* sought treatment had no private health insurance (60.6%), compared with those who *had* sought treatment (39.5%). This association is directly reported in Part B of the results which examines differences between those who had and had not sought treatment, after stratification by severity, but suggests that lack of private health insurance may be a barrier for some women who might otherwise benefit from alleviation of severe incontinence.

Table 4 Distribution (%) of private health insurance cover among those with high and low incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total
	%	%	%
Sought treatment	N = 253	N = 191	N = 444
No insurance	39.5	41.4	40.3
Veterans' cover	6.7	6.8	6.8
Private hospital cover only	13.4	14.1	13.7
Private hospital and ancillary	40.3	37.7	39.2
Have not sought treatment	N = 132	N = 204	N = 336
No insurance	60.6	58.8	59.5
Veterans' cover	5.3	2.9	3.9
Private hospital cover only	5.3	6.4	6.0
Private hospital and ancillary	28.8	31.9	30.7
All*	N = 447	N = 455	N = 902
No insurance	46.5	50.1	48.3
Veterans' cover	6.5	4.8	5.7
Private hospital cover only	11.2	9.9	10.5
Private hospital and ancillary	35.8	35.2	35.5

* The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases is greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

Table 5 shows the distribution of women’s ability to manage on available income by their incontinence severity. There was no significant difference between high and low severity groups in the distribution of ability to manage on income for the whole sample, or when stratified by having sought treatment. However, among those with both high and low severity, a higher proportion of those who had not sought treatment reported finding it impossible or difficult to manage on their income compared to those who had sought treatment. This association is tested further in Part B, which directly compares those who had and had not sought treatment. Again, this suggests that women with financial difficulties may be foregoing the potential benefits of treatment.

Table 5 Distribution (%) of ability to manage on income among those with high and low incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total
	%	%	%
Sought treatment	N = 251	N = 196	N = 447
Impossible/difficult to manage	40.6	37.2	39.1
Not too bad to manage	47.4	45.4	46.5
Easy to manage	12.0	17.3	14.3
Have not sought treatment	N = 134	N = 210	N = 344
Impossible/difficult to manage	47.0	47.6	47.4
Not too bad to manage	38.8	38.1	38.4
Easy to manage	14.2	14.3	14.2
All*	N = 448	N = 474	N = 922
Impossible/difficult to manage	45.3	41.6	43.4
Not too bad to manage	42.4	43.2	42.8
Easy to manage	12.3	15.2	13.8

* The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases is greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

The proportion of women who reported having used various types of protection against leaking urine is compared between high and low incontinence severity groups in Table 6. Women with high severity were more likely to use ordinary sanitary pads (25.8%) and incontinence pads (23.6%), than with women with low severity (17.4% and 8.6% respectively). Among those who had sought treatment, women with low severity incontinence were more likely to have used ordinary panty liners and less likely to have used incontinence pads, than women who had high severity incontinence. Among those who had not sought treatment, there were no significant differences in use of various types of protection.

Table 6 Proportion (%) of women who used different types of protection by incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total	χ^2 **
	%	%	%	
Sought treatment	N = 258	N = 196	N = 454	
Ordinary panty liners	22.5	34.7	27.8	8.29*
Ordinary sanitary pads	29.1	26.0	27.8	0.52
Incontinence pads	33.3	12.2	24.2	26.98*
Tissues/Toilet paper	4.7	3.1	4.0	0.74
A vaginal device	0.8	0.0	0.4	n/a ¹
Have not sought treatment	N = 136	N = 212	N = 348	
Ordinary panty liners	24.3	19.3	21.3	1.20
Ordinary sanitary pads	15.4	9.9	12.1	2.39
Incontinence pads	9.6	4.7	6.6	3.15
Tissues/Toilet paper	3.7	4.2	4.0	0.07
A vaginal device	0.0	0.0	0.0	n/a ¹
All***	N = 458	N = 476	N = 934	
Ordinary panty liners	24.5	26.1	25.3	0.32
Ordinary sanitary pads	25.8	17.4	21.5	9.58*
Incontinence pads	23.6	8.6	16.0	39.00*
Tissues/Toilet paper	5.5	3.6	4.5	1.94
A vaginal device	0.4	0.0	0.2	n/a ¹

*p<0.05

** Computed for a 2 (high severity/low severity) x 2 (have used/have not used this type) table.

*** The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases may be greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

¹ It is not appropriate to calculate the chi-square statistic since more than 20% of cells have an expected count less than 5.

The proportion of women who reported that they would be willing to pay for incontinence treatment out of their own pocket is shown in Table 7 by incontinence severity. Among both those who had and had not sought treatment, women with high severity incontinence were more willing to pay for treatment than those with low severity incontinence, but this difference was only statistically significant when groups were combined.

Table 7 Proportion (%) of women who said they would be willing to pay for incontinence treatment by incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total	χ^2 **
	%	%	%	
Sought treatment	N = 222	N = 157	N = 379	
Willing to pay for treatment	63.1	54.8	59.6	2.62
Have not sought treatment	N = 120	N = 174	N = 294	
Willing to pay for treatment	47.5	39.1	42.5	2.06
All***	N = 395	N = 377	N = 772	
Willing to pay for treatment	56.2	46.2	51.3	7.80*

*p<0.05

** Computed for a 2 (high severity/low severity) x 2 (would pay/would not pay) table.

*** The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases may be greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

The mean amount women were willing to pay is shown by incontinence severity in Table 8 (among those who said they were willing to pay for treatment). Although the mean amount that women with high severity were willing to pay each week was higher than those with low severity, both when stratified by treatment-seeking and in the sample as a whole, the differences were not statistically significant. This may be explained by the great variability in responses to this item (high variability makes it less likely that even quite a large difference in means will be statistically significant).

Table 8 Mean (standard deviation) amount women were willing to pay for incontinence treatment by incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total	t (df)
	Mean (std. dev.) \$	Mean (std. dev.) \$	Mean (std. dev.) \$	
Sought treatment	N = 79	N = 47	N = 126	
Amount willing to pay per week	\$43.84 (\$128.61)	\$23.81 (\$30.28)	\$36.37 (\$103.70)	1.32 (91.9)
Have not sought treatment	N = 33	N = 48	N = 81	
Amount willing to pay per week	\$20.82 (\$17.83)	\$18.27 (\$23.40)	\$19.31 (\$21.22)	0.56 (78.1)
All*	N = 125	N = 104	N = 229	
Amount willing to pay per week	\$34.62 (\$103.21)	\$20.13 (\$26.06)	\$28.04 (\$78.44)	1.51 (142.7)

* The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases may be greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

The proportion of women with high and low incontinence severity who spoke English at home is shown in Table 9, stratified by whether they had sought treatment. There were no significant differences between women with high severity and women with low severity incontinence in language spoken at home for the whole sample, or when stratified by whether women had sought incontinence treatment. In other words, whether or not a woman speaks English at home seems to have little impact on severity or treatment-seeking.

Table 9 Proportion (%) of women who spoke English at home by incontinence severity, stratified by having sought treatment.

	High Severity	Low Severity	Total	χ^2 *
	%	%	%	
Sought treatment	N = 246	N = 192	N = 438	
Speak English at home	78.5	83.3	80.6	1.641
Have not sought treatment	N = 133	N = 210	N = 343	
Speak English at home	85.0	88.6	87.2	0.948
All**	N = 441	N = 466	N = 907	
Speak English at home	81.6	83.7	82.7	0.671

* Computed for a 2 (high severity/low severity) x 2 (English-speaking/Non English-speaking) table.

** The proportions presented for 'all' are based on the sample before stratification by having sought treatment. The number of cases may be greater than the sum of those who had and had not sought treatment since it includes those who had missing values for treatment seeking.

For those women who had sought treatment or advice for their incontinence, the proportion who had consulted each type of health practitioner is shown in Table 10, by incontinence severity. The most frequently consulted health professional was a General Practitioner (73.6%) and a significantly higher proportion of women with high severity incontinence had consulted a General Practitioner than those with low severity incontinence. The next most frequently consulted health practitioner for incontinence was an Obstetrician or Gynaecologist, followed by Urologist. About one fifth of women with high severity incontinence had consulted a Nurse Continence Advisor, and a similar proportion had seen a Physiotherapist. The proportion of women who reported having consulted the other types of health professionals was consistently higher among those with high severity than among those with low severity incontinence, although the difference between groups was not statistically significant (see Table 10).

Table 10 Proportion (%), of women who had sought treatment, who consulted health practitioners for incontinence treatment or advice, by incontinence severity.

	High Severity	Low Severity	Total	χ^2 **
	N = 258	N = 196	N = 454	
	%	%	%	
General Practitioner	77.5	68.4	73.6	4.80*
Obstetrician/Gynaecologist	47.7	41.3	44.9	1.81
Urologist	36.0	29.1	33.0	2.44
Nurse Continence Advisor	20.9	14.8	18.3	2.81
Community or Women's Health Nurse	9.7	9.2	9.5	0.33
Physiotherapist	19.0	18.4	18.7	0.29
Nutritionist	1.6	0.5	1.1	1.11
Pharmacist	5.0	2.6	4.0	1.81
Alternative Practitioner	5.4	4.1	4.8	0.44

*p<0.05

** Computed for a 2 (high severity/low severity) x 2 (have consulted this professional/have not consulted this professional) table.

Table 11 presents the proportion of women who had undergone different testing procedures for incontinence by their incontinence severity status, among those who had sought treatment. Urine tests and pelvic floor assessments were the most frequently reported tests. There were no significant differences between those with high and low incontinence severity in the proportion of women who had undergone any of the testing procedures.

Table 11 Proportion (%) of women who had sought treatment, who underwent different testing procedures for incontinence, by incontinence severity.

	High Severity	Low Severity	Total	χ^2 *
	N = 258	N = 196	N = 454	
	%	%	%	
Urine test	43.8	42.9	43.4	0.04
Pelvic floor assessment	47.3	45.4	46.5	0.16
Ultrasound	17.4	15.3	16.5	0.37
Bladder x-ray	20.2	15.8	18.3	1.40
Kidney x-ray	18.2	12.2	15.6	3.01
Cystoscopy	23.3	23.0	23.1	0.01
Urodynamics	27.9	24.5	26.4	0.67

* Computed for a 2 (high severity/low severity) x 2 (have undergone this test/have not undergone this test) table.

Among those women who had sought treatment for incontinence, the proportion who had tried different treatment types and the proportion of those who were very or moderately satisfied with the outcome of that treatment are shown in Table 12, by incontinence severity. The most frequently reported treatment was pelvic floor exercises, and there was no difference between those with high and low severity in the proportion who had tried pelvic floor exercises as a treatment for incontinence. However, among those who had tried pelvic floor exercises, women with low severity incontinence were more likely to be satisfied with the outcome (68.2%) compared to those with high severity incontinence (51.5%). A significantly higher proportion of women with high severity incontinence had tried bladder training (34.9%) compared to those with low severity incontinence (25.5%). Again, those with low severity incontinence were more likely to be satisfied with the outcome (73.5%) than those who had tried bladder training and had high severity incontinence (55.6% satisfied).

Table 12 Proportion (%) of women who had tried each treatment and the proportion of those who were satisfied with the outcome, by incontinence severity.

	Treatment Tried			χ^2 **	Satisfaction with Treatment			
	High Severity	Low Severity	Total		High Severity	Low Severity	Total	χ^2 ***
	N=258 %	N=196 %	N=454 %		%	%	%	
Pelvic floor exercises	77.5	77.0	77.3	0.02	51.5	68.2	58.8	9.66*
Bladder training	34.9	25.5	30.8	4.59*	55.6	73.5	61.9	4.32*
Weight loss	21.7	12.8	17.8	6.09*	48.1	56.5	50.7	0.46
Treating cough/hay fever	15.1	4.1	10.4	14.61*	63.2	62.5	63.0	n/a ¹
Treating constipation	13.2	7.7	10.8	3.53	80.6	93.3	84.8	n/a ¹
HRT	17.1	17.9	17.4	0.05	78.6	61.3	71.2	2.60
Drug therapy	17.4	14.8	16.3	0.57	59.5	64.3	61.4	0.16
Urinary alkalisers	23.3	19.4	21.6	0.99	66.7	83.8	73.2	3.42
Antibiotics	12.4	9.7	11.2	0.82	78.1	77.8	78.0	n/a ¹
Abdominal bladder surgery	23.3	17.3	20.7	2.37	40.0	56.3	46.3	2.07
Vaginal surgery	25.2	20.9	23.3	1.14	36.7	64.9	47.4	7.30*
Vaginal device	4.7	3.6	4.2	0.32	63.6	42.9	55.6	n/a ¹
Urethral device	1.2	1.0	1.1	n/a ¹	66.7	50.0	60.0	n/a ¹
Cranberry juice/tablets	11.6	13.3	12.3	0.28	46.4	75.0	59.6	4.38*
Hypnotherapy	0.0	0.5	0.2	n/a ¹	0.0	0.0	0.0	n/a ¹
Acupuncture	1.9	2.0	2.0	n/a ¹	80.0	25.0	55.6	n/a ¹

* p<0.05

** Computed for a 2 (high severity/low severity) x 2 (have tried this treatment/have not tried this treatment) table.

*** Computed for a 2 (high severity/low severity) x 2 (satisfied with this treatment/ not satisfied with this treatment) table.

¹ It is not appropriate to calculate the chi-square statistic since more than 20% of cells have an expected count less than 5.

As shown in Table 12, women with high severity incontinence were more likely to have tried weight loss (21.7%) and treating a cough or hay fever (15.1%) than women with low severity incontinence (12.8% and 4.1% respectively). More women with high incontinence severity had also tried treating constipation, drug therapy, urinary alkalisers, antibiotics and surgery compared with women who had low severity incontinence. However, these differences between women with high and low severity incontinence were not statistically significant. Although there was no difference between women with high and low severity incontinence in the proportion who had tried cranberry juice or tablets for treating incontinence, those with low severity who had tried this treatment were significantly more likely to be satisfied with the outcome (75.0%) than those with high severity incontinence (46.4% satisfied). In other words, women with high severity were somewhat more likely to have tried a whole range of treatments, but on the whole were somewhat less likely to be satisfied with the outcomes.

Part B Differences between those who have and have not sought treatment, stratified by severity.

The distribution of age groups among those who had and had not sought treatment for incontinence, stratified by the severity of their incontinence, is shown in Table 13. A significantly greater proportion of mid-age and older women had sought treatment for their incontinence compared with women in the young age group. There was a significantly higher proportion of young women among those who had not sought treatment compared with those who had sought treatment, and this difference was greatest among those with low incontinence severity. In other words, young women and those with lower severity were least likely to seek treatment.

Table 13 Age distribution (%) of those who had and had not sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2
	%	%	%	
High severity	N = 258	N = 136	N = 394	
Young	4.7	28.7	12.9	46.43*
Mid-age	49.6	41.2	46.7	
Older	45.7	30.1	40.4	
Low severity	N = 196	N = 212	N = 408	
Young	12.8	51.9	33.1	71.66*
Mid-age	46.4	22.2	33.8	
Older	40.8	25.9	33.1	
All**	N = 497	N = 402	N = 899	
Young	9.5	47.3	26.4	163.88*
Mid-age	47.7	26.6	38.3	
Older	42.9	26.1	35.4	

*p<0.05

** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases is greater than the sum of those with high and low severity incontinence since it includes those who had missing values for incontinence severity.

The proportion of women with each type of incontinence is compared for those who had and had not sought treatment in Table 14. Because all women with high severity incontinence were categorised as having 'mixed' incontinence type, statistical analysis was not appropriate. Among those with low severity incontinence, a slightly higher proportion of those who had not sought treatment had 'stress only' incontinence (12.3%), compared with those who had sought treatment (9.2%), and a similar difference was found in the proportion with stress incontinence between those who had and had not sought treatment when the sample was not stratified by incontinence severity.

Table 14 Distribution (%) of type of incontinence by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2
	%	%	%	
High severity	N = 258	N = 136	N = 394	
Stress only	0.0	0.0	0.0	n/a ¹
Urge only	0.0	0.0	0.0	
Other only	0.0	0.0	0.0	
Mixed	100.0	100.0	100.0	
Low severity	N = 196	N = 212	N = 408	
Stress only	9.2	12.3	10.8	n/a ²
Urge only	7.7	5.2	6.4	
Other only	1.0	0.5	0.7	
Mixed	82.1	82.1	82.1	
All*	N = 497	N = 402	N = 899	
Stress only	4.0	7.5	5.5	n/a ²
Urge only	3.3	3.2	3.2	
Other only	0.4	0.3	0.4	
Mixed	92.3	89.1	90.9	

* The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases is greater than the sum of those with high and low severity incontinence since it includes those who had missing values for incontinence severity.

¹ It is not appropriate to calculate the chi-square statistic since incontinence type is a constant.

² It is not appropriate to calculate the chi-square statistic since more than 20% of cells have an expected count less than 5.

The proportion of women with different levels of private health insurance among those who had and had not sought treatment for incontinence, is shown in Table 15. A significantly higher proportion of women who had not sought treatment had no private health insurance compared to those who had sought treatment. This effect was the same regardless of severity. Thus, lack of private insurance appears to serve as a barrier to treatment-seeking, regardless of severity.

Table 15 Distribution (%) of private health insurance cover by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2
	%	%	%	
High severity	N = 253	N = 132	N = 385	
No insurance	39.5	60.6	46.8	17.09*
Veterans' cover	6.7	5.3	6.2	
Private hospital cover only	13.4	5.3	10.6	
Private hospital and ancillary	40.3	28.8	36.4	
Low severity	N = 191	N = 204	N = 395	
No insurance	41.4	58.8	50.4	15.87*
Veteran's cover	6.8	2.9	4.8	
Private hospital cover only	14.1	6.4	10.1	
Private hospital and ancillary	37.7	31.9	34.7	
All**	N = 486	N = 386	N = 872	
No insurance	40.7	59.3	49.0	34.57*
Veterans' cover	6.6	3.6	5.3	
Private hospital cover only	13.0	5.7	9.7	
Private hospital and ancillary	39.7	31.3	36.0	

*p<0.05

** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases is greater than the sum of those with high and low severity incontinence since it includes those who had missing values for incontinence severity.

The proportion of women who reported different levels of ability to manage on their available income is shown in Table 16, by whether they had or had

not sought treatment for incontinence. A significantly higher proportion of women who had not sought help reported finding it impossible or difficult to manage on their available income compared with those who had sought help.

Table 16 Distribution (%) of ability to manage on income by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2
	%	%	%	
High severity	N = 251	N = 134	N = 385	
Impossible/difficult to manage	40.6	47.0	42.9	2.63
Not too bad to manage	47.4	38.8	44.4	
Easy to manage	12.0	14.2	12.7	
Low severity	N = 191	N = 204	N = 395	
Impossible/difficult to manage	37.2	47.6	42.6	4.47
Not too bad to manage	45.4	38.1	41.6	
Easy to manage	17.3	14.3	15.8	
All**	N = 490	N = 397	N = 887	
Impossible/difficult to manage	39.4	47.9	43.2	7.12*
Not too bad to manage	45.7	37.5	42.1	
Easy to manage	14.9	14.6	14.8	

*p<0.05

** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases is greater than the sum of those with high and low severity incontinence since it includes those who had missing values for incontinence severity.

The proportion of women who used various types of protection against leaking urine is compared between those who had and had not sought treatment in Table 17. Compared with those who had not sought treatment, a significantly higher proportion of those who had sought treatment had used ordinary panty liners (26% vs. 19.7%), ordinary sanitary pads (26.0% vs. 10.9%) and incontinence pads (23.1% vs. 5.7%). Those who had sought treatment were generally higher users of all products.

Table 17 Proportion (%) of women reporting having used different types of protection by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2 **
	%	%	%	
High severity	N = 258	N = 136	N = 394	
Ordinary panty liners	22.5	24.3	23.1	0.16
Ordinary sanitary pads	29.1	15.4	24.4	8.98*
Incontinence pads	33.3	9.6	25.1	26.76*
Tissues/Toilet paper	4.7	3.7	4.3	0.21
A vaginal device	0.8	0.0	0.5	n/a ¹
Low severity	N = 196	N = 212	N = 408	
Ordinary panty liners	34.7	19.3	26.7	12.26*
Ordinary sanitary pads	26.0	9.9	17.6	18.20*
Incontinence pads	12.2	4.7	8.3	7.56*
Tissues/Toilet paper	3.1	4.2	3.7	0.40
A vaginal device	0.0	0.0	0.0	n/a ²
All***	N = 497	N = 402	N = 899	
Ordinary panty liners	26.0	19.7	23.1	4.97*
Ordinary sanitary pads	26.0	10.9	19.2	32.22*
Incontinence pads	23.1	5.7	15.4	51.89*
Tissues/Toilet paper	3.6	3.5	3.6	0.13
A vaginal device	0.6	0.0	0.3	n/a ¹

*p<0.05

** Computed for a 2 (sought treatment/have not sought treatment) x 2 (have used/have not used this type of protection) table.

*** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases may be greater than the sum of those with high and low severity incontinence since it includes those who had missing values for incontinence severity.

¹ It is not appropriate to calculate the chi-square statistic since more than 20% of cells have an expected count less than 5.

² It is not appropriate to calculate the chi-square statistic since use of a vaginal device is a constant.

The proportion of women who said they would be willing to pay for incontinence treatment is shown in Table 18, by whether they had or had not sought treatment for incontinence. A significantly higher proportion of women who had sought treatment said they would be willing to pay for treatment (59.2%) compared to those who had not sought treatment (40.3%). This effect was the same among women with high and low incontinence severity.

Table 18 Proportion (%) of women who said they would be willing to pay for incontinence treatment by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	χ^2 ***
	%	%	%	
High severity	N = 222	N = 120	N = 342	
Willing to pay for treatment	63.1	47.5	57.6	7.73*
Low severity	N = 157	N = 174	N = 331	
Willing to pay for treatment	54.8	39.1	46.5	8.17*
All***	N = 414	N = 340	N = 754	
Willing to pay for treatment	59.2	40.3	50.7	26.64*

*p<0.05

** Computed for a 2 (sought treatment/have not sought treatment) x 2 (would pay/would not pay) table.

*** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases may be greater than the sum of those with high and low incontinence severity since it includes those who had missing values for incontinence severity.

Among those women who said they would be willing to pay for treatment, the mean amount that they would be willing to pay for treatment per week is shown in Table 19, by whether they had or had not sought treatment for incontinence. The mean nominated amount was higher among those who had sought treatment than among those who had not sought treatment, both for all women and when stratified by incontinence severity.

Table 19 Mean (standard deviation) amount women were willing to pay for incontinence treatment by having sought treatment, stratified by incontinence severity.

	Sought treatment	Have not sought treatment	Total	t (df)
	Mean (std. dev.) \$	Mean (std. dev.) \$	Mean (std. dev.) \$	
High severity	N = 79	N = 33	N = 112	
Amount willing to pay per week	\$43.84 (\$128.61)	\$20.82 (\$17.83)	\$37.06 (\$108.75)	1.56 (84.9)
Low severity	N = 47	N = 48	N = 95	
Amount willing to pay per week	\$23.81 (\$30.28)	\$18.27 (\$23.40)	\$21.01 (\$27.03)	1.00 (86.6)
All**	N = 135	N = 88	N = 223	
Amount willing to pay per week	\$35.98 (\$100.46)	\$19.48 (\$21.05)	\$29.47 (\$79.57)	1.85 (151.6)

** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases may be greater than the sum of those with high and low incontinence severity since it includes those who had missing values for incontinence severity.

The proportion of women who spoke English at home is compared between those who had and had not sought treatment in Table 20, stratified by incontinence severity. Women who had sought treatment were more likely to be those who spoke English at home.

Table 20 Proportion (%) of women who spoke English at home by whether they had sought treatment, stratified by incontinence severity

	Sought treatment	Have not sought treatment	Total	χ^2 **
	%	%	%	
High Severity	N = 246	N = 133	N = 379	
Speak English at home	78.5	85.0	80.7	2.35
Low Severity	N = 192	N = 210	N = 402	
Speak English at home	83.3	88.6	86.1	2.30
All***	N = 480	N = 394	N = 874	
Speak English at home	80.8	87.3	83.8	6.67*

* $p < 0.05$

** Computed for a 2 (sought treatment/did not seek treatment) x 2 (English-speaking/Non English-speaking) table.

*** The proportions presented for 'all' are based on the sample before stratification by incontinence severity. The number of cases may be greater than the sum of those with high and low incontinence severity since it includes those who had missing values for incontinence severity.

The proportion of women with high severity incontinence is compared between those who had and had not consulted each type of health professional in Table 21. Generally, those with high severity were more likely to consult health professionals.

Table 21 Proportion (%) of women who had sought treatment that had high severity incontinence, by whether or not they had consulted different health practitioners for incontinence treatment or advice

	Did consult	Did not consult	χ^2 **
	% with high severity	% with high severity	
General Practitioner	59.9	48.3	4.80*
Obstetrician/Gynaecologist	60.3	54.0	1.81
Urologist	62.0	54.3	2.44
Nurse Continence Advisor	65.1	55.0	2.81
Community or Women's Health Nurse	58.1	56.7	0.33
Physiotherapist	57.6	56.6	0.29
Nutritionist	80.0	56.6	1.11
Pharmacist	72.2	56.2	1.81
Alternative Practitioner	63.6	56.5	0.44

*p<0.05

** Computed for a 2 (have consulted this professional/have not consulted this professional) x 2 (high severity/low severity) x table.

The proportion of women who had and had not undergone different testing procedures that had high severity incontinence is shown in Table 22. There were no significant differences between those who had and had not undergone any of the testing procedures in the proportion of women with high severity incontinence.

Table 22 Proportion (%) of women who had sought treatment that had high severity incontinence, by whether or not they had undergone different testing procedures for incontinence.

	Did have this test	Did not have this test	χ^2 *
	% with high severity	% with high severity	
Urine test	57.4	56.4	0.04
Pelvic floor assessment	57.8	56.0	0.16
Ultrasound	60.0	56.2	0.37
Bladder x-ray	62.7	55.5	1.40
Kidney x-ray	66.2	55.1	3.01
Cystoscopy	57.1	56.7	0.01
Urodynamics	60.0	55.7	0.67

* Computed for a 2 (have undergone this test/have not undergone this test) x 2 (high severity/low severity) table.

Among those women who had sought treatment for incontinence, the proportion who had high severity incontinence is shown in Table 23 by whether or not they had tried each type of treatment, and whether or not they were satisfied with the treatment. Bladder training, weight loss, and treating an existing cough or hay fever were the only treatments that were more common among those with high severity. Generally, those with high severity were less likely to be satisfied with the treatments they had tried.

Table 23 Proportion (%) of women with high severity incontinence by whether they had tried each treatment and whether they were satisfied with the outcome.

	Treatment Tried			Satisfied with Treatment		
	Yes	No	χ^2 **	Yes	No	χ^2 ***
	% with high severity	% with high severity		% with high severity	% with high severity	
Pelvic floor exercises	57.0	56.3	0.02	49.8	66.7	9.66*
Bladder training	64.3	53.5	4.59*	58.1	75.5	4.32*
Weight loss	69.1	54.2	6.09*	65.8	73.0	0.46
Treating cough/hay fever	83.0	53.8	14.61*	82.8	82.4	n/a ¹
Treating constipation	69.4	55.3	3.53	64.1	85.7	n/a ¹
HRT	55.7	57.1	0.05	63.5	42.9	2.60
Drug therapy	60.8	56.1	0.57	58.1	63.0	0.16
Urinary alkalisers	61.2	55.6	0.99	56.3	76.9	3.42
Antibiotics	62.7	56.1	0.82	64.1	63.6	n/a ¹
Abdominal bladder surgery	63.8	55.0	2.37	52.6	68.2	2.07
Vaginal surgery	61.3	55.5	1.14	47.8	74.5	7.30*
Vaginal device	63.2	56.6	0.32	70.0	50.0	n/a ¹
Urethral device	60.0	56.8	n/a ¹	66.7	50.0	n/a ¹
Cranberry juice/tablets	53.6	57.3	0.28	41.9	71.4	4.38*
Hypnotherapy	0.0	57.0	n/a ¹	0.0	0.0	n/a ¹
Acupuncture	55.6	56.9	n/a ¹	80.0	25.0	n/a ¹

* p<0.05

** Computed for a 2 (have tried this treatment/have not tried this treatment) x 2 (high severity/low severity) table.

*** Computed for a 2 (satisfied with this treatment/ not satisfied with this treatment) x 2 (high severity/low severity) table.

¹ It is not appropriate to calculate the chi-square statistic since more than 20% of cells have an expected count less than 5.

References

- Chiarelli P & Brown WJ (1999) Leaking urine in Australian women: prevalence and associated conditions. *Women & Health, 29*(1), 1-13.
- Gunthorpe W (1998) *Development of a General Practice-based Treatment Program for Women with Urinary Incontinence*. Doctoral Thesis, University of Newcastle.
- Miller YD, Brown WJ, Russell A & Chiarelli P. (2003) Urinary Incontinence across the Lifespan. *Neurourology & Urodynamics, 22*(6) 550-557.
- Miller YD, Brown WJ, Smith N & Chiarelli P (2003) Managing Urinary Incontinence across the lifespan. *International Journal of Behavioral Medicine, 10*(2), 143-161.
- Sandvik H, Hunskaar S, Seim A, Hermstad R, Vanvik A & Bratt H (1993) Validation of a severity index in female urinary incontinence and its implementation in an epidemiological survey. *Journal of Epidemiology and Community Health, 47*, 497-499.
- Wall L, Norton PA, DeLancey JOL (1993) *Evaluating symptoms*. *Practical Urogynecology*. Baltimore, Williams and Wilkins: 41-82
- Walters MD (1989) Mechanisms of continence and voiding, with International Continence Society classification of dysfunction. *Obstetrics and Gynecology Clinics of North America, 16*, 773-785.