

**The individual determinants of care-seeking among middle-aged women reporting urinary incontinence: Analysis of a 2273-woman cohort.**

Xavier Fritel, Henri Panjo, Noëlle Varnoux, Virginie Ringa

► **To cite this version:**

Xavier Fritel, Henri Panjo, Noëlle Varnoux, Virginie Ringa. The individual determinants of care-seeking among middle-aged women reporting urinary incontinence: Analysis of a 2273-woman cohort.: The determinants of care-seeking among women reporting urinary incontinence. *Neurourology and Urodynamics*, Wiley, 2014, 33 (7), pp.1116-22. <10.1002/nau.22461>. <inserm-00846030>

**HAL Id: inserm-00846030**

**<http://www.hal.inserm.fr/inserm-00846030>**

Submitted on 18 Jul 2013

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

1 Abstract

2 Aims: Our main objective was to analyze individual determinants that lead middle-  
3 aged women to seek medical care for UI.

4 Methods: Observational longitudinal study among GAZEL cohort participants: 2640  
5 women aged 50-62 completed a self-administered questionnaire at baseline. Eight  
6 years later (2008) 2273 (86%) responded to a follow-up questionnaire. Seeking care  
7 for UI was defined as any consultation for UI during the 8-year follow-up period.  
8 Individual determinants considered in the regression analysis were social and  
9 demographic characteristics, social relations, UI type and severity, and other health  
10 factors.

11 Results: Among 1192 women reporting incontinence at baseline, 24.4% had visited a  
12 physician at least once for UI during the follow-up period (56.0% of those reporting  
13 severe UI). The care-seeking rate increased with age at baseline. Multivariate  
14 analysis showed that women who reported severe UI (OR= 4.1; 95%CI 2.6-6.5),  
15 mixed UI(2.0; 1.3-3.0), or neurologic disease (1.6; 1.1-2.6), had weak social support  
16 (1.4; 1.0-2.0), or talked about their UI with close friends or family (1.5; 1.0-2.1) were  
17 more likely to seek care for UI. A model including these factors had a 78% probability  
18 of correctly differentiating women with incontinence who chose to seek care from  
19 those who did not. Our analysis could not take factors related to the organization of  
20 health services into account.

21 Conclusions: Women do not always seek care for UI, even when it is severe. Besides  
22 UI severity and type, consultation is associated with aging, weak social support,  
23 conversation about it with close friends and family, and neurologic disorders.

24

25 Keywords: female urinary incontinence, care-seeking, longitudinal study

26

27 Introduction

28 Urinary incontinence (UI) is a common symptom in women, one that can cause  
29 disability and healthcare expenditures. In a European study of 17 080 women, 35%  
30 reported UI; among the latter, only 31% had ever consulted a physician about UI, 5%  
31 had used medication for it, and 5% had undergone surgery for it [1]. In the United  
32 States the percentage of hospital admissions with a primary diagnosis of UI was  
33 44/100 000 in 2000, and the number of outpatient visits 1 845/100 000 [2]. The direct  
34 cost of UI in the US was estimated at \$12.4 billion in 1995 [3]. In France and  
35 elsewhere, health authorities are actively taking steps to improve care for UI.

36 The demand for care appears to be associated with UI severity [4], and is likely to be  
37 proportional to both the severity of symptoms and their impact on quality of life (QoL).  
38 It is also likely that social factors, such as social relations, can influence the demand  
39 for care. Women may obtain advice from their close friends and family and thus  
40 consult their physician less often. But women with strong social relations may also be  
41 more likely to receive advice from their relatives to seek care. Middle-aged women  
42 often rely on advice from friends and family for their menopause symptoms [5]. A  
43 better understanding of the determinants of care-seeking could help adapt health  
44 policy in the domain of UI and improve its management.

45 Our main objective in this longitudinal study in the GAZEL cohort was to analyze the  
46 individual determinants (severity of disorder, social relations and social and  
47 demographic characteristics) associated with seeking care for UI among middle-aged  
48 women. Our secondary objective was to analyze the characteristics associated with  
49 satisfaction after a medical consultation for UI and after treatment.

50

51 Population and Methods

52 Our sample consisted of middle-aged women participating in the GAZEL cohort,  
53 made up of employees of the French public power company who had volunteered in  
54 1989 to respond to various self-administered health questionnaires, then and in the  
55 years to come ([www.gazel.inserm.fr](http://www.gazel.inserm.fr)) [6]. They were 50-70 years of age during the  
56 period of this study — from 2000 to 2008. In 2000 (baseline), they were questioned in  
57 detail about lower urinary tract symptoms [4,7,8]. Additional data were collected in  
58 2008 (follow-up) in a questionnaire focusing on lower urinary tract symptoms,  
59 doctors' visits, and health care since 2000. Of the 2640 women who had responded  
60 in 2000, 2273 (86%) responded again in 2008; they constitute our sample for this  
61 analysis.

62 Seeking UI care was defined as any office visit for UI during the follow-up period. The  
63 question asked of each participant was “Since the year 2000, have you consulted a  
64 doctor about involuntary urine leakage?” Those who answered yes to the question  
65 were asked if the medical visit met their expectations (“not at all”, “a little”,  
66 “somewhat”, “very”, or “completely”). Dissatisfaction was defined by an answer of “not  
67 at all” or “a little”. Women with doctors' visits for UI were questioned about the  
68 treatment provided and whether if its results met their expectations (“poorer than”,  
69 “the same as”, or “better than” expected).

70 Independent variables considered were social and demographic characteristics (age,  
71 educational level, occupation, household income, size of the city of residence, parity,  
72 number of people living in the home, and marital status), and lifestyle data (smoking,  
73 alcohol consumption, and physical exercise). Data about social network (an index  
74 based on marital status, contacts with children not living at home, parents, parents-  
75 in-law, other family members, and friends, and participation in voluntary groups or

76 associations), social support (a scale based on 2 items about emotional support and  
77 2 items about instrumental support), and social satisfaction (a scale based on the  
78 quality of relationships with individuals the participant feels close to) came from the  
79 New Haven EPESE scale [9]. UI was defined as any involuntary urinary leakage  
80 reported during the previous 12 months. The Sandvik UI severity score was  
81 computed from UI frequency and amount of leakage [10]. UI type, urgency, and  
82 frequency were determined with the BFLUTS questionnaire; women were considered  
83 to suffer from stress UI, urge UI, or mixed UI if they answered “sometimes”, “most of  
84 the time”, or “all of the time” to the questions: “Does urine leak when you are  
85 physically active, exert yourself, cough or sneeze?” or “Does urine leak before you  
86 can get to the toilet?” [11]. Additional data about discussing UI with close friends or  
87 family, partners or colleagues, were also collected. Health variables considered were  
88 body mass index, menopausal status, climacteric symptoms, diabetes,  
89 endocrinopathy, hypertension, cardiovascular disease, neurologic disease, chronic  
90 bronchitis or cough, lumbar (or sciatic) pain, use of diuretics, antidepressants,  
91 sleeping pills or other medications, consultations with their general practitioner, and  
92 generic health-related QoL (Nottingham Health Profile).

93 First we compared the characteristics of responders and non-responders. The  
94 independent variables considered in the analysis of care-seeking were structured in  
95 three dimensions: 1) social and demographic characteristics and lifestyle, 2) UI  
96 severity and type, and discussion of UI with others, and 3) other health variables  
97 (listed in the preceding paragraph). Bivariate and multivariate analyses for each  
98 dimension produced separate multivariate models, one focused on social and  
99 demographic variables (Model 1), another on UI (Model 2), and a third on health  
100 factors (Model 3). Variables were introduced into each model if they were associated

101 with seeking care for UI in the bivariate analysis with  $p < 0.20$ . A fourth and global  
102 multivariate model included the variables associated ( $p < 0.15$ ) with care-seeking in  
103 one of the three preceding models. Forward stepwise regression analyses were  
104 conducted for each multivariate model to exclude variables with  $p > 0.15$ .

105 Analyses of dissatisfaction with the consultation for UI, on the one hand, and with the  
106 results of the treatment, on the other, were conducted with the same independent  
107 variables. Bivariate analyses were performed to select variables associated with  
108 dissatisfaction ( $p < 0.20$ ), which were then introduced into the multivariate models.

109 All multivariate analyses were adjusted for age. To assess the fit of our logistic  
110 models and measure their predictive power, we performed a receiver operating  
111 characteristic (ROC) analysis. We estimated the area under the ROC curve, that is,  
112 the c-statistic (or concordance index). Its value varies from 0.5 (predictive power no  
113 better than chance) to 1.0 (perfect predictive power) [12]. We also assessed  
114 separately the predictive power of each variable included in the final model for care  
115 seeking with the same concordance index. All analyses were performed with SAS  
116 software (SAS Institute Inc., Cary, NC, USA).

117 The GAZEL cohort scientific committee and the CNIL (French Data Protection  
118 Authority) approved this study. This work was funded by the IRESP (Institute for  
119 Public Health Research), which had no role in the conduct of the study or the  
120 analysis of the data.

121

122

123 Results

124 The 2273 women responding at follow-up had a higher occupational status, reported  
125 fewer people living in their home, were more likely to exercise, and less likely to  
126 report hypertension, cardiovascular disease, or use of sleeping pills than the 265  
127 non-respondents (Table I).

128 At follow-up, the respondents' mean age was 63 (sd  $\pm$ 3.36; range 58-70; no  
129 difference with non-respondents, data not shown). At baseline, 52.4% (1192) had  
130 reported some UI. Among these 1192 incontinent women, 291 (24.4%) had visited a  
131 physician for UI at least once during the follow-up period. This rate increased with the  
132 frequency of leakage at baseline: 18.1% (166/916) if less than once a week, 40.0%  
133 (56/140) if weekly, and 50.7% (69/136) if daily. It also increased according to age at  
134 baseline, 20.6% (58/282) at 49-51 years, 23.9% (91/380) at 52-54, 25.9% (69/266) at  
135 55-57, and 27.7% (73/264) at 58-62. Among the 1065 women continent at baseline,  
136 the incidence of UI in 2008 was 50.0% (532), and the rate of seeking care for UI  
137 during the follow-up period was 5.3% (57).

138 Seeking care for UI was associated with high parity and weak social support (Table  
139 II, Model 1), with severe UI, mixed UI, and discussing UI with close friends or family  
140 (Table II, Model 2), and with poor QoL, a GP visit during the past 12 months, and  
141 neurologic disease (Table II, Model 3). In the final model, care-seeking was  
142 associated with severe UI, mixed UI, neurologic disease, discussion about UI with  
143 friends or close relatives, and weak social support (Table II). The concordance index  
144 of our final model was high (0.78). The c-statistic calculated for each variable  
145 included in the final model showed that the four variables that contributed most to  
146 predicting care-seeking were UI severity (c=0.74), UI type (c=0.72), discussing UI

147 with friends or close relatives ( $c=0.71$ ), or with colleagues ( $c=0.70$ ). The concordance  
148 index for the other variables (age, social support, quality of life, consultation with GP,  
149 and neurologic disease) was poor (between 0.52 and 0.58).

150 Of the 348 women (15.3%) who visited a physician for UI during the follow-up period,  
151 21.6% (75) were not satisfied with the consultation (Table III). Dissatisfaction was not  
152 significantly associated with age (19.6% before 55 versus 25% after). The risk of  
153 dissatisfaction was associated with weak social support, urgency, and urge UI (Table  
154 IV). Women who reported chronic bronchitis or coughing were less likely to report  
155 dissatisfaction (Table IV).

156 During the 8-year follow-up period, 11.9% (270/2273) of the women were treated for  
157 UI; treatment outcome was consistent with or exceeded expectations for 52.6%  
158 (142/270) (Table III). Satisfaction was not significantly associated with age (47.6%  
159 before 55 versus 58.4% after). Women reporting diabetes were more likely to be  
160 satisfied with their treatment, and women with mixed UI or those with a poor QoL  
161 were more likely to be dissatisfied (Table V).

162



163 Discussion

164 In our sample of 2273 women aged 58-70 years reporting on events over an 8-year  
165 period, 348 (15.3%) visited a physician, and 270 (11.9%) underwent treatment for UI  
166 during the follow-up period. UI severity at baseline was the main reason for seeking  
167 healthcare for it. The percentage of women visiting a physician because of UI  
168 increased independently with both age and UI severity; other factors associated with  
169 consultation for UI were UI type (mixed), weak social support, discussing UI with  
170 close friends or family, and neurologic diseases. Rates of dissatisfaction with the visit  
171 and the treatment were 21.6% and 39.6% respectively.

172 It is unsurprising, even obvious, that the more severe the UI, the greater the demand  
173 for care. Nonetheless, confirming this clinical intuition requires following a sample of  
174 women likely to have UI, characterizing their urinary symptoms, and collecting  
175 information over a sufficient period of time. Strengths of our study include its  
176 longitudinal nature and our consideration of numerous factors collected in the GAZEL  
177 cohort, including occupational, social, demographic and medical characteristics, all of  
178 which may influence care-seeking. A cross-sectional study cannot provide a rigorous  
179 analysis of the association between current urinary symptoms and past care because  
180 the symptoms might have been improved or induced by the treatment, similarly, it  
181 cannot indicate whether current wishes for care will be followed up by actual care-  
182 seeking.

183 Of 331 women from the Boston area who reported UI on a weekly basis, 45% had  
184 sought care at least once [13]. Among those who sought care, 60% received it. In  
185 47% of the cases, treatment was pelvic floor muscle exercise. This cross-sectional  
186 study found that neither socioeconomic level nor type of health insurance was  
187 associated with seeking care or treatment. Despite numerous differences, related in

188 particular to health insurance, survey method, and population, the rates of  
189 consultation and treatment in this Boston study are close to those observed in ours.  
190 This finding suggests that private health insurance is not a major obstacle to  
191 treatment for UI. In another cross-sectional survey, 26% of 6625 incontinent women  
192 had seen a physician for their UI [14]. Care-seeking increased with their age, UI  
193 severity, UI duration, and urge or mixed UI compared with stress UI. These results  
194 are consistent with ours; we showed a higher consultation rate for mixed UI (29.6%),  
195 a slightly lower one for urge UI (22.6%), and a rate of 12.9% for stress UI. This higher  
196 rate of consultation in case of mixed or urge UI is also found in other surveys [15,16].  
197 Urge UI has a greater impact on QoL than stress UI [15]. The multiplicity of  
198 circumstances of leakage, their unpredictable character, urgency and abundance  
199 may explain this stronger demand for care in women with mixed UI. Our analysis also  
200 shows that, at equal levels of severity, those who report urge UI are much more  
201 dissatisfied with their medical consultation than the women with stress UI.  
202 The women were, for the most part (75%), satisfied with their consultation, but only  
203 half (53%) found that the treatment outcome met or exceeded their expectations.  
204 Surveys in the general population usually show poor results compared to clinical  
205 trials performed by medical experts on selected patients. In the population-based  
206 study by Black et al. of women who had surgery for SUI, 28% were cured and 66%  
207 reported that the outcome met or exceeded their expectations [17].  
208 In our study, more than 40% of the women with severe UI had not discussed it with a  
209 physician. The EPINCONT cross-sectional survey found similar results, with no  
210 consultation for 46% of the women who reported severe UI [14]. This lack of  
211 consultation may be explained by women's belief that UI is a normal consequence of  
212 aging or of motherhood, or the embarrassing nature of the situation, reluctance to be

213 treated over a long term, or lack of knowledge about the treatments [18,19]. Other  
214 elements may be related to the woman's personality or her social relations. Women  
215 who talk about their UI to others are more likely to see a physician for it [16,18]. We  
216 found that those who talked about their UI to their family or friends are those who  
217 sought care, probably because they were less ashamed or embarrassed about  
218 talking about it, whether to friends or a physician.

219 Weak, versus strong social support was significantly associated with a higher rate of  
220 care-seeking (20.6% vs 12.4%). We hypothesize that women with UI symptoms who  
221 have strong social support are likely to receive help and advice without needing to  
222 ask their physician, while those with low social support consult their physicians,  
223 perhaps precisely because they have no one else to rely on. Social support was  
224 defined by 4 questions exploring instrumental and emotional support, but only the  
225 questions concerning instrumental support were significantly associated with care-  
226 seeking for UI (data not shown).

227 The rate of consultation for UI was slightly higher among women with poor health-  
228 related QoL (20.2%) than among those with a good QoL score (10.7%). Poor health-  
229 related QoL probably results in more medical consultations and therefore increases  
230 the opportunities to seek care for urinary disorders. Two studies found that women  
231 were more likely to request care for UI when they were consulting a physician for  
232 another reason than to make a special appointment for it [14,16], and women who  
233 consulted their physician for UI have more comorbidities and saw physicians more  
234 frequently [18]. It may be that a medical consultation is the occasion for screening for  
235 symptoms or diseases not directly related to the initial reason for the consultation.  
236 The case of neurologic diseases is particular because in some situations these can

237 affect continence. Unfortunately we do not have details about these neurologic  
238 diseases to develop further hypotheses.

239 In France, women may see a gynecologist without having to be referred by their GP;  
240 this is not the case for other specialists. This may explain why 53.5% consulted a  
241 gynecologist for UI and only 23.6% a urologist. Moreover there were substantially  
242 more gynecologists practicing in France than urologists [20].

243 O'Donnell et al found higher consultation rates for women with UI in France (33%)  
244 and Germany (40%) than in Spain (24%) or the UK (25%) [16]. These differences  
245 may be related to differences in the healthcare system (number of and access to  
246 specialists, university training, and information provided to women). Because our  
247 study was limited to France, we were unable to test any of these hypotheses. Other  
248 potential differences may be demographic, such as parity, or cultural, such as social  
249 support; both were significantly associated with seeking care for UI in our analysis.  
250 Another limitation of our work is linked to characteristics of the GAZEL cohort, which  
251 is made up of present or past employees. Because they were all covered by public  
252 health insurance, we were not able to consider the possible effect of that factor. It is  
253 interesting to note that many incontinent women do not consult even though they are  
254 covered by health insurance. We do not know whether the medical consultations  
255 involved the woman's specific request or if the subject was broached on the occasion  
256 of a consultation for another reason. We were not able to consider the duration of  
257 symptoms, which is likely to play a role in the decision to see a physician. The  
258 reluctance to talk about incontinence that some women or some physicians may feel  
259 was not addressed in our study. We can not rule out the possibility of a recall bias  
260 relative to medical visits or treatment. Unfortunately healthcare records were not  
261 available to confirm the information.

262 Conclusions

263 Our results confirmed that even in a country where the healthcare system ensures  
264 reimbursement for medical expenses, including doctors' visits, numerous women do  
265 not see physicians although they have severe UI. The determinants of healthcare  
266 utilization are not only clinical; social relations also play a role. Progress is needed to  
267 give the many women who do not consult doctors despite severe UI a chance to talk  
268 to a physician about their condition and receive appropriate management that meets  
269 their expectations.

270

271 Acknowledgment

272 We thank Jo Ann Cahn for editing assistance. We thank all the women who  
273 participated in our study. We thank the French national gas and electricity company  
274 Electricite de France–Gaz de France (EDF-GDF), especially the Service-Général-de-  
275 Médecine-de-Contrôle and the Caisse-centrale-d’action-sociale-du-personnel-des-  
276 industries-électriques-et-gazières. We also acknowledge the “cohortes” team of the  
277 Unit INSERM 1018 Versailles-St-Quentin University responsible for GAZEL database  
278 management.

279 Funding

280 Our longitudinal study inside the GAZEL cohort was funded by the IRESP (Institute  
281 for Public Health Research). The funding organization was not involved in collection,  
282 analysis or interpretation of data.

283

284 References

- 1 Hunskaar S, Lose G, Sykes D, Voss S. The prevalence of urinary incontinence in women in four European countries. *BJU Int* 2004;93:324-30.
- 2 Thom DH, Nygaard IE, Calhoun E. Urologic diseases in America project: urinary incontinence in women – national trends in hospitalizations, office visits, treatment and economic impact. *J Urol* 2005;173:1295-1301.
- 3 Wilson L, Brown JS, Shin GP, KO Luc, LL Subak. Annual direct cost of urinary incontinence. *Obstet Gynecol* 2001;98:398–406.
- 4 Saadoun K, Ringa V, Fritel X, Varnoux N, Zins M, Bréart G. Negative impact of urinary incontinence on quality of life, a cross-sectional study among women aged 49-61 years enrolled in the GAZEL cohort. *Neurourol Urodyn* 2006;25:696-702.
- 5 Duffy O, Iversen L, Hannaford P. The impact and management of symptoms experienced at midlife: a community-based study of women in northeast Scotland. *BJOG* 2012;119:554-64.
- 6 Ringa V, Fritel X, Varnoux N, Zins M, Quelen C, Bouyer J. Discontinuation of hormone therapy in the French GAZEL cohort 1990-2006. *Fertil Steril* 2010;94:1387-91.
- 7 Fritel X, Ringa V, Varnoux N, Fauconnier A, Piau S, Bréart G. Mode of delivery and severe stress incontinence. A cross-sectional study among 2625 perimenopausal women. *BJOG* 2005;112:1646–51.
- 8 Fritel X, Ringa V, Varnoux N, Zins M, Bréart G. Mode of Delivery and Fecal Incontinence at Midlife: A Study of 2,640 Women in the GAZEL Cohort. *Obstet Gynecol* 2007;110:31-8.
- 9 Melchior M, Berkman LF, Niedhammer I, Chea M, Goldberg M. Social relations and self-reported health: a prospective analysis of the French Gazel cohort. *Soc Sci Med* 2003;56:1817-30.
- 10 Sandvik H, Seim A, Vanvik A, Hunskaar S. A severity index for epidemiological surveys of female urinary incontinence: comparison with 48-hour pad-weighing tests. *Neurourol Urodyn* 2000;19:137-45.
- 11 Jackson S, Donovan J, Brookes S, Eckford S, Swithinbank L, Abrams P. The Bristol Female Lower Urinary Tract Symptoms questionnaire: development and psychometric testing. *Br J Urol* 1996;77:805–12.
- 12 Hosmer DW, Lemeshow S. *Applied Logistic regression*, 2nd Edition. Wiley 2000.
- 13 Harris SS, Link CL, Tennstedt SL, Kusek JW, McKinlay JB. Care seeking and treatment for urinary incontinence in a diverse population. *J Urol* 2007;680-4.
- 14 Hannestad YS, Rortveit G, Hunskaar S. Help-seeking and associated factors in female urinary incontinence, the Norwegian EPINCONT Study. *Scand J Prim Health Care* 2002;20:102-7.

- 
- 15 Coyne KS, Kvasz M, Ireland AM, Milsom I, Kopp ZS, Chapple CR. Urinary Incontinence and its Relationship to Mental Health and Health-Related Quality of Life in Men and Women in Sweden, the United Kingdom, and the United States. *Eur Urol* 2012;61:88-95.
  - 16 O'Donnell M, Lose G, Sykes D, Voss S, Hunskar S. Help-seeking behaviour and associated factors among women with urinary incontinence in France, Germany, Spain and the United Kingdom. *Eur Urol* 2005;47:385-92.
  - 17 Black N, Griffiths J, Pope C, Bowling A, Abel P. Impact of surgery for stress incontinence on morbidity: cohort study. *BMJ* 1997;315:1493-8.
  - 18 Kinchen KS, Burgio K, Diokno AC, Fultz NH, Bump R, Obenchain R. Factors associated with women's decisions to seek treatment for urinary incontinence. *J Womens Health* 2003;12:687-98.
  - 19 Horrocks S, Somerset M, Stoddart H, Peters TJ. What prevents older people from seeking treatment for urinary incontinence? A qualitative exploration of barriers to the use of community continence services. *Fam Pract* 2004;21:689-96.
  - 20 Conseil National de l'Ordre des Médecins. Atlas de la démographie médicale en France, situation au 1er janvier 2008. [http://www.conseil-national.medecin.fr/system/files/atlas2008\\_0.pdf?download=1](http://www.conseil-national.medecin.fr/system/files/atlas2008_0.pdf?download=1)



Table I: Characteristics and comparison of respondents to the follow-up questionnaire (N=2273) and non-respondents (N=265), analysis adjusted for age.

Characteristics at baseline (2000) except: *1989, **1990-96, ***1994.	Follow-up questionnaire (2008)					p
	Responders (N=2273)		Non-responders (N=265)			
	n	%	n	%		
Age	<55	1282	56.4	134	50.6	0.07
	55+	991	43.6	131	49.4	
Occupational category*	management	192	8.7	16	6.3	0.008
	supervisor, sales representative	1460	66.1	157	61.8	
	office worker, employee	556	25.2	81	31.9	
Parity **	0-1	925	40.7	101	38.1	0.36
	>=2	1348	59.3	164	61.9	
Number of persons at home	>=3	626	27.5	91	34.3	0.004
Physical exercise	yes	1205	53.0	102	38.5	0.001
BMI (kg/m <sup>2</sup> )	<25	1489	65.5	157	60.1	0.14
	>=25	784	34.6	104	39.9	
Social support scale ***	weak	541	26.5	56	27.2	0.71
	moderate	699	34.3	73	35.4	
	strong	798	39.2	77	37.4	
Social satisfactionscale***	good	1335	65.2	122	58.6	0.06
	poor	714	34.8	86	41.4	
Social network index ***	weak	1303	68	133	67.5	0.88
	strong	614	32	64	32.5	
Difficulty retaining urine	Yes	1260	56.4	144	55.6	0.78
Involuntary urinary leakage	Yes	1192	52.8	127	48.9	0.21
UI hygienic or social problem	Yes	518	23.3	52	20.1	0.23
	No UI	1065	47.1	133	50.8	
	Stress UI	337	14.9	32	12.2	
	Urge UI	62	2.7	8	3.1	
	Mixed UI	782	34.6	88	33.6	
UI type	Undetermined UI type	16	0.7	1	0.4	0.67
	No UI (0)	1065	47.2	133	51.1	
	Mild (1-2)	845	37.4	86	33.1	
	Moderate (3-4)	231	10.2	23	8.9	
	Severe (6-8)	116	5.2	18	6.9	
UI severity (Sandvik score)						0.69
Hypertension or cardiovascular disease	yes	641	28.2	95	35.8	0.02
Medication use	yes	1299	58.4	165	64.7	0.08
Sleeping pill use	yes	198	8.9	37	14.5	0.001

Table II: Women's characteristics at baseline associated with care-seeking for UI during the 8-year follow-up period. Each logistic regression is adjusted for age. ORs are in bold when  $p < 0.05$ .

Characteristics	Model 1 Social demographic			Model 2 Urinary incontinence			Model 3 Health issues			Final Model		
	N	%	adjusted OR [95%CI]	N	%	adjusted OR [95%CI]	N	%	adjusted OR [95%CI]	N	%	adjusted OR [95%CI]
Age/ 3-year	1859		1.1 [1.0-1.3]	2257		<b>1.1 [1.0-1.3]</b>	2159		<b>1.1 [1.0-1.3]</b>	1931		1.1 [1.0-1.3]
Parity												
<2	730	13.4	1									
>=2	1129	17.1	<b>1.4 [1.1-1.9]</b>									
Number of persons at home												
<3	1351	16.6	1									
>=3	508	13.2	0.8 [0.6-1.1]									
Social network index												
good	595	13.1	1									
weak	1264	16.9	1.3 [0.9-1.7]									
Social support scale												
strong	744	12.4	1							748	13.1	1
moderate	643	15.9	1.2 [0.9-1.7]							668	15.4	1.2 [0.8-1.6]
weak	472	20.6	<b>1.6 [1.1-2.2]</b>							515	20.0	<b>1.4 [1.0-2.0]</b>
Social satisfaction scale												
good	1236	14.1	1									
poor	623	18.8	1.2 [0.9-1.6]									
UI severity at baseline (Sandvik)												
no UI				1065	5.3	<b>0.5 [0.3-0.7]</b>				898	5.3	<b>0.5 [0.3-0.8]</b>
mild				845	17.5	1				733	17.9	1
moderate				231	33.8	<b>1.9 [1.4-2.7]</b>				197	34.0	<b>1.8 [1.2-2.6]</b>
severe				116	56.0	<b>4.4 [2.9-6.7]</b>				103	56.3	<b>4.1 [2.6-6.5]</b>
UI type												
no UI (2000)				1065	5.3	.				898	5.3	.
stress UI				333	12.9	1				292	13.0	1
urge UI				62	22.6	1.7 [0.9-3.5]				56	23.2	1.9 [0.9-3.9]
mixed UI				781	29.6	<b>2.1 [1.4-3.0]</b>				675	30.1	<b>2.0 [1.3-3.0]</b>
Discussion of UI with friends or close relatives												
no UI (2000)				1065	5.3	.				898	5.3	.
no				886	20.7	1				751	20.9	1
yes				306	35.3	<b>1.4 [1.0-2.0]</b>				282	35.1	<b>1.5 [1.0-2.1]</b>
Discussion of UI with colleagues												
no UI (2000)				1065	5.3	.				898	5.3	.
no				1107	23.0	1				954	23.4	1
yes				85	42.4	1.5 [0.9-2.6]				79	41.8	1.5 [0.9-2.7]
Quality of life (NHP)												
good							717	10.7	1	643	10.6	1
moderate							717	15.5	<b>1.5 [1.1-2.0]</b>	636	16.0	1.3 [0.9-1.9]
poor							752	20.4	<b>2.0 [1.5-2.7]</b>	652	20.6	1.3 [0.9-1.9]
Consultation with GP in the last 12 months												
no							86	14.6	1	81	4.9	1
yes							2073	16.0	<b>3.3 [1.2-9.2]</b>	1850	16.2	2.4 [0.8-6.9]
Neurologic disease												
no							2001	14.7	1	1797	14.9	1
yes							158	25.9	<b>1.6 [1.1-2.4]</b>	134	26.9	<b>1.6 [1.1-2.6]</b>
Hypertension or cardiovascular disease												
no							1550	14.1	1			
yes							609	19.2	1.3 [1.0-1.6]			
concordance index		0.60			0.77			0.62			0.78	

OR for age was calculated continuously but is reported by 3-year increments.

Variables not found to be significant and not shown: educational level, occupation, household incomes, size of city of residence, marital status, physical exercise, alcohol consumption, smoking, discussion of UI with partner, UI as hygienic or social problem, frequency, urgency, BMI, menopausal status, hot flushes, vaginal dryness,

diabetes or endocrinopathy, chronic bronchitis or cough, lumbar or sciatic pain, drug consumption, diuretic consumption, antidepressant consumption, and sleeping pill use.

Table III: Consultation, treatment for UI, and satisfaction (N=2273)

		N	%
<u>Consultation for UI</u>			
	none	1925	84.7
	one	236	10.4
	several	112	4.9
Physicians' gender	man	152	43.7
	woman	133	38.2
	both	33	9.5
	data missing	30	8.6
Physicians' specialty	General Practitioner	150	43.1
	Gynecologist	186	53.5
	Urologist	82	23.6
	other	20	5.8
Satisfied with consultation	missing data	12	3.4
	not at all or a little	75	21.6
	somewhat, very or completely	261	75.0
<u>Treatment of UI</u>			
	none	2003	88.1
	one	189	8.3
	several	81	3.6
Surgery	one procedure	88	32.6
	several	4	1.5
Medication	one type	30	11.1
	several	24	8.9
Pelvic floor exercise	one prescription	93	34.4
	several	91	33.7
Other treatment	one	6	2.2
	several	2	0.7
Satisfaction with treatment outcome	missing data	21	7.8
	poorer than expected	107	39.6
	same as or better than expected	142	52.6

Table IV: Women's characteristics at baseline associated with dissatisfaction with the doctor's visit for UI during the 8-year follow-up period. Logistic regression adjusted for age. OR are indicated bold when  $p < 0.05$ .

Characteristics	N	Age adjusted OR [95%CI]	Full adjusted OR [95%CI]
Number of persons at home			
<3	262	1.0	
>=3	74	0.5 [0.3-1.1]	
Social support scale			
strong	99	1	1
moderate	102	0.7 [0.3-1.5]	0.9 [0.4-2.1]
weak	105	<b>1.9 [1.0-3.7]</b>	<b>2.2 [1.2-5.3]</b>
Urgency			
no	133	1	1
yes	197	<b>3.7 [2.0-7.0]</b>	<b>2.7 [1.2-5.9]</b>
UI hygienic or social problem			
no	110	1	
yes	162	1.6 [0.9-2.8]	
UI Type			
stress UI	42	1	1
urge UI	14	<b>15 [2.6-89]</b>	<b>16 [1.5-171]</b>
mixed UI	224	<b>7.1 [1.7-31]</b>	6.0 [0.7-48]
UI severity (Sandvik)			
mild	142	1	1
moderate	76	<b>2.7 [1.4-5.3]</b>	1.8 [0.8-3.9]
severe	64	<b>2.4 [1.2-4.8]</b>	2.0 [0.9-4.4]
Quality of life (NHP)			
moderate or good	192	1.0	
poor	144	<b>1.7 [1.0-2.9]</b>	
Hot flushes			
no	165	1.0	
yes	171	1.6 [0.9-2.7]	
Chronic bronchitis or cough			
no	310	1	1
yes	26	0.4 [0.1-1.4]	<b>0.2 [0.0-0.9]</b>
Hypertension or cardiovascular disease			
no	223	1.0	
yes	113	1.5 [0.9-2.5]	
Medication use			
no	119	1.0	
yes	209	1.7 [0.9-3.1]	
Antidepressant use			
no	275	1.0	
yes	53	1.6 [0.8-3.1]	
concordance index			0.77

Variables not found to be significant and not shown here: educational level, occupation, household incomes, marital status, parity, size of the city of residence, physical exercise, alcohol consumption, smoking, BMI, social network index, social satisfaction scale, discussion of UI with friends close relatives, colleagues, or partner, frequency, consultation with GP, menopausal status, vaginal dryness, diabetes or endocrinopathy, neurologic disease, lumbar or sciatic pain, diuretic use, and sleeping pill use.

Table V: Women's characteristics at baseline associated with dissatisfaction with UI treatment during the 8-year follow-up period. Logistic regression adjusted for age. OR are indicated bold when  $p < 0.05$ .

Characteristics	N	Age adjusted OR [95%CI]	Full adjusted OR [95%CI]
<b>Marital status</b>			
alone	52	1	1
couple	197	0.6 [0.3-1.1]	0.6 [0.3-1.2]
<b>BMI</b>			
<25	167	1	
25+	82	1.3 [0.8-2.3]	
<b>Social network index</b>			
weak	157	1	1
good	62	0.6 [0.3-1.0]	
<b>UI Type</b>			
stress UI	37	1	1
urge UI	10	<b>3.1 [0.7-13.3]</b>	2.5 [0.5-11.7]
mixed UI	165	<b>2.8 [1.2-6.3]</b>	<b>2.8 [1.2-6.6]</b>
<b>UI severity (Sandvik)</b>			
mild	110	1	1
moderate	57	1.6 [0.8-3.0]	1.5 [0.7-3.2]
severe	47	<b>2.2[1.1-4.4]</b>	2.1 [1.0-4.5]
<b>UI treatment*</b>			
surgery	77	1	1
médication	37	1.3 [0.6-3.0]	1.6 [0.7-3.9]
pelvic floor exercise	129	1.1 [0.6-1.9]	1.6 [0.8-3.1]
<b>Discussion of UI with friends or close relatives</b>			
no	132	1	
yes	82	1.5 [0.9-2.7]	
<b>Discussion of UI with colleagues</b>			
no	184	1	1
yes	30	1.8 [0.8-4.1]	2.1 [0.8-5.1]
<b>Urgency</b>			
no	99	1	1
Yes	145	<b>2.1 [1.2-3.6]</b>	
<b>Quality of life (NHP)</b>			
moderate or good	149	1	1
poor	100	<b>2.1 [1.3-3.6]</b>	<b>2.1 [1.2-3.7]</b>
<b>Hypertension or cardiovascular disease</b>			
no	165	1	1
yes	84	1.4 [0.9-2.5]	1.8 [1.0-3.3]
<b>Diabetes or endocrinopathy</b>			
no	197	1	1
Yes	52	0.6 [0.3-1.1]	<b>0.4 [0.2-0.8]</b>
<b>Concordance index</b>			0.70

Variables not found to be significant and not shown here: educational level, occupation, number of persons at home, household incomes, parity, size of the city of residence, physical exercise, alcohol consumption, smoking, social satisfaction scale, social support scale, UI hygienic or social problem, discussion of UI with partner, frequency, consultation with GP in the last 12 months, menopausal status, hot flushes, vaginal dryness, chronic bronchitis or cough, neurologic disease, lumbar or sciatic pain, medication use, antidepressant use, diuretic use, and sleeping pill use.

\*Type of treatment was defined as followed: surgery: alone or combined with another type of treatment; medication: alone or combined with another treatment except surgery; pelvic floor exercise: alone or combined with another treatment except medication or surgery.