ABSTRACT

Aims: To determine the prevalence and severity of urinary incontinence (UI) in a group of female nurses and midwives, and to examine the relationship between UI, work and intention to leave current job.

Methods: An electronic survey 'Fit for the future' was distributed to nurses and midwives in NSW, Australia between May 2014 and February 2015. UI was investigated using the International Consultation on Incontinence UI - Short Form. Examined work characteristics included: work role, location, setting, contract, shift, job satisfaction and plans to leave current job. Logistic regression modelling was performed to determine whether the severity of UI had an independent effect on intention to leave.

Results: Of 5,041 survey responses, 68.5% answered the question on urine leakage. Of the included female sample (n=2,907) the prevalence of UI was 32.0% (95% CI: 30-34%): of these 40.5% experienced moderate and 4.4% 'severe or very severe' symptoms. UI was more likely to be reported in nurses or midwives working part-time or days only (not shifts). Those with 'severe or very severe UI' were more likely to indicate an intention to leave at 12 months (OR: 2.68; 95% CI: 1.18-6.06) than those with slight or moderate symptoms, after accounting for age, body mass index, parity, pelvic organ prolapse, anxiety, depression, work contract, shift and job satisfaction.

Conclusions: UI is a condition of high prevalence and significant severity in female nurses and midwives. In this workforce, severe UI was associated with intentions related to future employment.

Key words: urinary incontinence; severity; female; nurses; midwives; workforce; prevention; aging.

INTRODUCTION

Urinary incontinence (UI) has significant negative impact on psychosocial health and quality of life, yet occupational links are not well investigated[1]. In high-income countries of Europe, Canada and the United Kingdom, the prevalence of any UI in women of working age has been estimated at 7.3% (6.5-8.1%) in 18 to 39 year olds and 13.7% (12.5-14.9%) in 40 to 59 year olds [2]. With prevalence estimates primarily associated with advancing age [3], childbearing [4] and a raised body mass index (BMI) [5], studies have also linked UI to mood states such as anxiety and depression [6] and musculoskeletal disorders such as back pain [7]. Although for the majority symptoms have been classified as 'slight' or 'minimal', a recent study of 'busy, active' women aged 45 to 60 years, found 11% experienced 'moderate' and 2% 'severe' symptoms, with increasing symptom severity directly related to poorer health-related quality of life [8]. Poor health status and reduced quality of life may influence work related decisions such as work role and participation in the workforce [9]. Whilst studies have investigated the impact of UI symptoms in the general workforce [1], few have examined this in identified workforce groups [10].

Nursing and midwifery are predominantly female occupations and together constitute the largest proportion of the healthcare workforce [11,12]. Lower urinary tract symptoms have been reported as highly prevalent in female Asian nurses (65% and 89.6%), despite most being nulliparous, of young age with normal BMI [13,14]. Of concern, almost 15% of studied Taiwanese nurses (average age 31 years) indicated 'moderate' and 2.5% 'severe' symptoms of UI [13]. Relationships between occupational stress and lower urinary tract symptoms have been identified in Chinese nurses [14], but links between nurses' symptom severity and work profiles were not explored.

Health status has been demonstrated as an important influence on a worker's intention to leave their job, with implications for workforce sustainability in a global climate of nursing and midwifery shortages [9]. A worker's expressed intention to leave strongly predicts actual departure [15] and is a 'red flag' indicator of workforce needs and potential future workforce changes. Individuals' psychological and physical health status clearly impact employment decisions but the influence of UI symptoms is not well understood. With evidence of health issues such as obesity and related comorbidities in some nurse workforce groups [16] as well as an ageing workforce demographic [11], further knowledge of the prevalence and impact of UI in this workforce is required. This study therefore sought to (1) determine the prevalence and severity of UI in a nursing and midwifery workforce (2) describe the work characteristics of the nurses and midwives who report symptoms of UI and (3) examine the relationship of symptom severity with nurses' and midwives' intention to leave their current job. Definitions used in this report conform to the International Continence Society (ICS) guidelines for terminology reporting.

MATERIALS AND METHODS

Design, participants and data collection

This research formed part of 'Fit for the Future', a study including a cross sectional observational survey examining the health risks and health behaviours of the nursing and midwifery workforce in Australia. An electronic survey distributed between May 2014 and February 2015 included demographic questions and validated instruments related to physical and mental health problems. In 2014 there were 88,319 Registered and Enrolled Nurses and 9,524 Registered Midwives in NSW,

Australia[11]; all were eligible to participate in the study and were recruited using multiple strategies. The primary method was via email with a link to the survey to members of the NSW Nurses and Midwives Association, the NSW professional organisation and trade union. The survey link was also widely advertised in various media: advertisements in trade journals, university websites, 'mailshots' to professional groups, and through social media. Ethics approval was provided by the University of Technology Sydney Human Research and Ethics Committee: HREC 2013000741 and South Eastern Sydney Local Health District HREC: Reference No. 11/148(LNR 11/POWH/242).

Instruments

The survey included demographic questions (age, gender and ethnicity) and general health questions: current BMI, health diagnoses: "Have you ever been diagnosed with: diabetes, etc." and symptoms: "In the past 12 months have you had any of the following health problems: anxiety, depression, back pain, urine infections etc."[17]Work related characteristics were sought including work role, location, setting, contract and shift work. Nurses and midwives were asked about job satisfaction and their 'intention to leave' with the question: "Do you have plans to leave your current job?" in the next 6 or 12 months [9]. Most survey questions in this study were derived from extant validated scales, with demonstrated rigour. Where questions were developed, they were subjected to face validity and piloted prior to use [18]. Detail of the psychometric properties of variables and instruments are described elsewhere [19].

Both male and female respondents were included in the larger 'Fit for the Future' study, but only data from female respondents comprised the present investigation. Female reproductive health data known to influence the occurrence of UI were collected: current pregnancy, number of children (parity), mode of birth (vaginal or caesarean section), menopausal status, evidence of pelvic organ prolapse ("Do you have any evidence of pelvic organ prolapse?") and current use of hormone replacement therapy. Respondents reporting a current pregnancy or urine infection 'sometimes' or 'often' in the last 12 months were excluded from the study.

Assessment of UI

The prevalence and severity of UI was investigated using the International Consultation on Incontinence Questionnaire UI – Short Form (ICIQUI-SF) [20]. The presence of UI was determined in the sequence of questions related to common health symptoms in the past 12 months. Respondents who reported any UI were directed to the ICIQUI -SF questionnaire. The prevalence of UI was determined by a positive response to the question: "Over the past 4 weeks, how often have you leaked urine?" with response options of 'about once a week or less often', 'two or three times a week', 'about once a day', 'several times a day' or 'all the time'. The degree of urine leakage was identified as a small, moderate or large amount. Interference with everyday life was indicated on a scale 0-10, '0' being not at all and '10' being a great deal. Symptom severity was calculated as a score out of 21, then categorised as slight (0-5), moderate (6-12), severe (13-18) or very severe (19-21) [21]. Subtypes of UI were determined by the question: "When does urine leak?" Stress urinary incontinence (SUI) was defined as urine leakage with physical activity/exercise or with cough/sneeze; urgency urinary incontinence (UUI) was urine leakage before getting to the toilet; mixed urinary incontinence (MUI) was urine leakage associated with both SUI and UUI. Other UI included: when asleep, when finished urinating and dressed, for no obvious reason or all the time [20].

Statistical analysis

Descriptive statistics provided information about the overall prevalence of UI and subtypes, symptom severity, health and work related variables. Prevalence rates were age stratified by 15-year age groups to facilitate comparisons with other workforce and community-based studies of women of working age. Severe and very severe UI were combined into one category ('severe UI') due to small numbers of data. Independent T Tests were used for parametric and Chi Square for nonparametric data to identify any significant differences in the work characteristics of nurses who reported UI in the past 4 weeks, and those who did not. Chi Square test was used to determine if there was a significant difference between the categorised symptom severity scale, nurses' and midwives' work satisfaction and intention to leave their job in the next 6 or 12 months. Logistic regression modelling was performed to determine whether severity of UI had an independent effect on intention to leave. Variables selected for entry into the model had independent bivariate associations of $p < 0.25$ with the outcome variable 'intention to leave' (BMI, parity, prolapse, depression, anxiety, contract and job satisfaction) or were supported by the literature[19] (age and shift). There was no evidence of strong collinearity (see Supplementary Material). Missing data were dealt with on a case-by-case basis: individual cases were excluded if they were missing data required for each analysis. All analyses were performed using SPSS version 22.0®. A *P* value of <0.05 (two tailed) was considered statistically significant.

RESULTS

Characteristics of participants

Of the total 5041 survey responses, 68.5% (n=3,454) answered the question on urine leakage. Females comprised 90.6% (n=3,093) of the sample: 69.6% (n= 2,152) were parous, 1.5% (n=44) reported a current pregnancy and 4.7% (n=144) a urine infection 'sometimes' or 'often' in the past 12 months. Following exclusions, the final sample for analyses comprised n=2,907, of mean age 47.4 (± 11.6, range 19-74) years and mean BMI 28.1 (± 6.4, range 15-57) kg/m^2.

Prevalence and severity of UI

Amongst the included sample the prevalence of any UI in the past 4 weeks was 32.0% (95% CI: 30-34%): of these, 46.2% (95% CI: 43-49%) had stress UI only, 23.1% (95% CI: 20-26%) urgency UI only, 22.7% (95% CI: 20-25%) mixed UI, and 7.9% 'other' UI (95% CI: 6-10%) (Figure 1). There was a trend for increased prevalence of UI with increase in age (Table 1). The greatest proportion of nurses and midwives with UI was in the 45-59 year age group, reporting 63.9% of all UI, affecting 40.1% of that age group. Just over half of those who reported UI indicated leakage in the past 4 weeks 'once a week or less' (57.8%), with most (92%) describing a 'small amount'. The mean bother score was 2.02 (± 2.12, range 0-10) and the mean ICIQUI-SF score was 6.0 (±3.03, range 3-21): 55.2% had slight UI (score 0-5), 40.5% moderate UI (6-12) and 4.4% severe or very severe UI (13-21) (Table 1).

General health characteristics of nurses and midwives with and without UI and female gender influences on the occurrence of UI are found in Table 1. Nurses and midwives with UI were significantly more likely to be obese, work part-time, days only (not shifts), in inner regional locations (Table 2).

Associations between UI severity, health and work variables

The degree of UI severity was not significantly different across different age groups (Table 1), however as UI severity increased from slight to moderate to severe, the proportion of nurses and midwives who were obese also increased (Table 1). Participants with UI who reported pelvic organ prolapse, diabetes, or symptoms of back pain, anxiety or depression (sometimes or often in the last 12 months), were more likely to have 'moderate', 'severe or very severe' symptoms (Table 1). Those with 'severe or very severe' UI had significantly less job satisfaction and greater likelihood to indicate an intention to leave their current job in the next 6 or 12 months than those with slight or moderate symptoms (Table 2).

Direct logistic regression modelling using the enter method was performed to assess the impact of UI severity on the likelihood that respondents with UI would report an intention to leave. Nurses and midwives with 'severe or very severe UI' were more likely to indicate an intention to leave at 12 months (OR: 2.68; 95% CI: 1.18-6.06) than those with 'slight' or 'moderate' symptoms, after accounting for age, BMI, parity, pelvic organ prolapse, anxiety, depression, work contract, shift and job satisfaction (Table 3; Supplementary Material). The model explained 22.3% of the variance at 12 months (Nagelkerke R square).

DISCUSSION

UI is a very common problem in nursing and midwifery, with one in 3 females experiencing leakage symptoms. For many of these nurses, the severity of leakage is sufficient to interfere with their lives. In this study, women with severe UI symptoms were more likely to report an intention to leave their job than those with slight or moderate symptoms. This has implications for workforce planning and retention, particularly considering the treatable nature of UI.

Prevalence of UI in the nursing and midwifery workforce

The prevalence of UI in this Australian workforce study is high when compared to the prevalence of UI reported from a large survey of working women in five high-income nations: the 'EPIC' study [2]. Our study of nurses found the overall prevalence of UI to be 32.0%, with 40.1% UI (20.5% of all respondents) in the 45 to 59 year age group; in a similar aged subgroup of the 'EPIC' study the prevalence was 13.7%. In a recent systematic review on the topic, the prevalence rates for UI in five studies of nursing workforce groups ranged 9.3% to 27.5% [10]. Potential reasons for variations in rates are differing participant demographics (e.g. age, parity), sampling methods, reporting definitions or cultural influences on reporting of symptoms that can be associated with shame or embarrassment. In the present study, 12.1% of nurses were aged 60 to74 years, reflecting an ageing workforce demographic. Nevertheless the high prevalence of UI in this workforce suggests a link with nurses' work environment, providing support to the work of Zhang and colleagues (2013) who found a higher prevalence of lower urinary tract symptoms in their study of female nurses than in comparable Chinese populations. Work conditions for nurses such as heavy workloads, high stress and poor bladder habits [14] were thought to influence nurses' symptom experience, though no potential inciting factors, pathological mechanisms or causal links were established.

UI severity and workforce participation

In the present study the proportion of female nurses and midwives with moderate (40.5%), severe or very severe (4.4%) symptoms of UI is considerably larger than in a survey of working females with UI in four high-income nations (11% moderate and 2% severe) [8], but similar to a cross sectional

survey of working American females (40% moderate, 7% severe and 1% very severe)[1]. Reasons for variations in severity despite the use of similar survey tools [21] may again reflect differing participant demographics. Severity of UI in our study was not associated with age or parity, but was linked to obesity, pelvic organ prolapse, diabetes, back pain, anxiety and depression. These latter links suggest the work conditions of these nurses and midwives may also have influenced symptom severity. In addition to occupational stress and high workloads, nurses frequently delay urination [13] which may lead to urinary urgency and urge UI if they are unable to access the bathroom as desired. Frequent bathroom breaks are an often-cited strategy to prevent UI [1]. In a study of Chinese nurses, 64.39% of those with lower urinary tract symptoms had urinary urgency and 21.03% urgency UI [14]. In our study, almost one in 4 (22.8%) nurses or midwives with UI had isolated urgency UI: 7.4% of all studied nurses and midwives. Individuals with urgency UI generally have a lower quality of life and greater severity of symptoms than those with other types of UI [22].

A crucially important finding of this study is that severe UI was associated with nurses' and midwives' intention to leave their current job. Though this study was cross sectional, this finding suggests that the experience of UI is related to future work plans. The effect of UI on working women has previously been reported as including altered concentration and ability to complete tasks, feelings of embarrassment and emotional distress [23]. Some working women have indicated that UI affected decisions about employment by a reduction of the number of hours worked or change in the type of work undertaken[1]. UI in older women has been predictive of work disability (measured by self-report of work limitations), but not workforce exit [24]. Thus, findings of the current investigation have significant implications for the workforce. In the context of global ageing, health status has been documented as a significant influence on work participation in a number of workforce studies [9] [19]; to our knowledge, this is the first study to demonstrate a relationship between UI symptoms and work plans. Nurses and midwives with UI were more likely to work part-time or 'days only' (not shifts); whilst other reasons may contribute to these work choices, these findings nevertheless support the proposition that women with UI work fewer hours [25]. Overall, study findings make an important contribution to still-limited knowledge of the impact of nurses' and midwives' UI symptoms on issues such as work hours, job choice, general workforce retention, and future workforce sustainability.

Treatable nature of UI: implications for the workforce

UI is a treatable and preventable condition [26]. Raising awareness of the prevalence and potential effects of this common condition in the workplace with workers, employers and policy makers should enable implementation of strategies to assist with prevention of symptoms, reduction of symptom severity and minimisation of the potential negative impact of symptoms on an individual's quality of life and work related choices. This survey examined the work characteristics and job intentions of nurses and midwives (the largest healthcare workforce) with UI, and findings may also be relevant to other health workers such as medical and ancillary staff.

The limitations of this study include the cross sectional design, which precluded examination of causality; and the potential for uncontrolled confounding. . The response rate for this study could not be determined as it was not possible to estimate how many nurses and midwives had access to the survey; however the profiles of respondents were similar to that of the Australian nursing and

midwifery workforce [19]. The results of the present investigation are therefore generally representative of this workforce, though there may be response bias present due to slight differences in the demographic characteristics of respondents and non-respondents to the urine leakage question: women who were slightly older (mean age 50.6 versus 47.4 years) or had BMI one point lower (27.2 versus 28.1 kg/m^2) were less likely to respond. The ICIQUI-SF is a self-report questionnaire, and as such may not accurately reflect the diagnoses of the condition and subtypes of UI.

CONCLUSIONS

UI is a condition of high prevalence and significant severity in female nurses and midwives. In this workforce, UI symptom severity was linked to intentions related to future employment. This new information needs to be acknowledged and addressed in the workplace, with implications for workforce policy and education of workers considering the treatable nature of UI. Future research should be directed towards understanding the links between type and severity of UI, job demands and job satisfaction. Further exploration is required of the role of work environment on the development of lower urinary tract symptoms and other types of pelvic floor dysfunction. Knowledge of the impact of the experience of symptoms on work choices and work productivity will assist implementation of changes in workplaces to minimise the negative impact of symptoms on the lives of those who have this common condition in an ageing workforce.

ACKNOWLEDGMENTS & FUNDING

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Figure 1. Prevalence of UI subtypes in 15-year age groups among women with UI.

Table 1. Comparison of the health characteristics of nurses and midwives with and without UI and the ICIQUI-SF.

Table 2. Comparison of work characteristics of nurses and midwives with and without UI and the ICIQUI-SF.

Table 3. Severity of UI as a predictor of intention to leave at 12 months for nurses and midwives with UI.

Supplementary material:
Working table for predictor variables for entry into log regression for intention to leave at 12 months.

Figure 1. Prevalence of UI subtypes in 15-year age groups among women with UI.
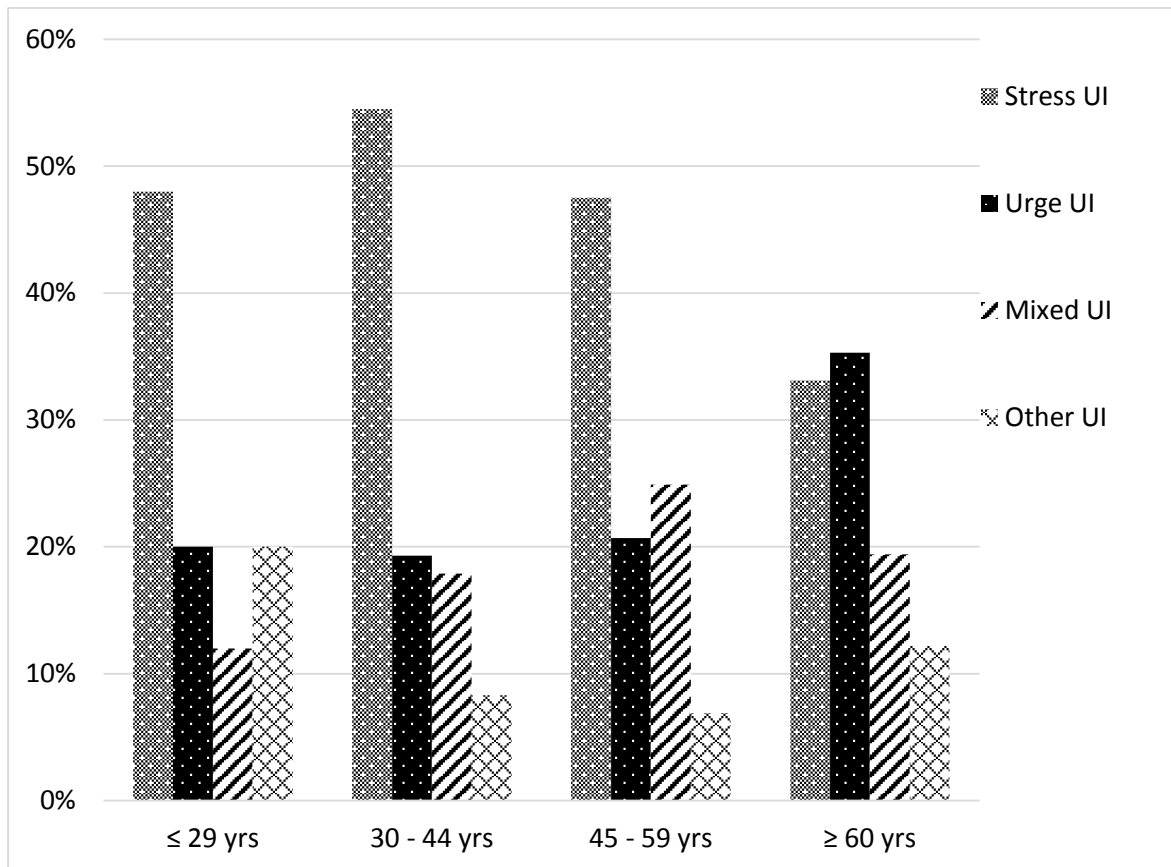
Table 1. Comparison of the health characteristics of nurses and midwives with and without UI and the ICIQUI-SF[b].

Health characteristic	No UI		UI		*P* value	Slight UI (0-5)[b]		Moderate UI (6-12)		Severe UI[e] (13-21)		*P* value
N[a] (%)	1977	(68.0)	930	(32.0)		503	(55.2)	369	(40.5)	40	(4.4)	
Age (N=2,667)												
≤ 29 years	263	(14.5)	25	(2.9)	<0.001[d]	15	(3.2)	8	(2.5)	0	(0)	0.441
30-44 years	521	(28.8)	145	(17.0)		75	(16.2)	64	(19.0)	4	(10.8)	
45-59 years	815	(45.0)	546	(63.9)		304	(65.5)	203	(60.4)	27	(73.0)	
≥ 60 years	213	(11.8)	139	(16.3)		70	(15.1)	61	(18.2)	6	(16.2)	
BMI (N=2,731)												
≥ 30 kg/m^2	501	(27.1)	382	(43.4)	<0.001[d]	185	(38.8)	165	(47.7)	26	(66.7)	<0.001[d]
Other (N=2,907)[c]												
Parity ≥ 1 birth	1263	(63.9)	770	(82.8)	<0.001[d]	415	(82.5)	311	(84.3)	31	(77.5)	0.503
Vaginal birth ≥ 1	1037	(52.5)	693	(74.5)	<0.001[d]	330	(70.8)	258	(76.3)	27	(71.1)	0.212
Caesarean ≥ 1	355	(18.0)	164	(17.6)	0.832	91	(18.1)	61	(16.5)	7	(17.5)	0.835
Prolapse	205	(10.4)	287	(30.9)	<0.001[d]	124	(24.7)	145	(39.3)	17	(42.5)	<0.001[d]
Menopause	794	(40.2)	567	(61.0)	<0.001[d]	301	(59.8)	231	(62.6)	27	(67.5)	0.506
Hormone therapy	119	(6.0)	88	(9.5)	0.001[d]	49	(9.7)	35	(9.5)	3	(7.5)	0.897
Diabetes	159	(8.0)	103	(11.1)	0.008[d]	47	(9.3)	45	(12.2)	9	(22.5)	0.026[d]
Back pain	917	(46.6)	503	(54.1)	<0.001[d]	252	(50.0)	222	(60.2)	25	(62.5)	0.008[d]
Anxiety	372	(18.8)	276	(29.7)	<0.001[d]	131	(26.0)	126	(34.1)	16	(40.0)	0.013[d]
Depression	314	(15.9)	242	(26.0)	<0.001[d]	109	(21.7)	114	(30.9)	17	(42.5)	0.001[d]

BMI: Body Mass Index;
ICIQUI-SF: International Consultation on Incontinence Urinary Incontinence-Short Form; UI: Urinary incontinence.
(a) Total sample N=2,907; (b) ICIQUI-SF sample N=912 (18 cases excluded due to incomplete data for score calculation); (c) Missing values for 'other' listed variables counted as not having condition, i.e. Parity question not answered = no births;
(d) Comparison of UI and severity categories: Chi Square test *P* value significant to the 0.05 level (two tailed); (e) Severity score 13-21 includes 'severe and very severe' UI.

Table 2. Comparison of work characteristics of nurses and midwives with and without UI and the ICIQUI-SF[b].

Work characteristic	No UI		UI		*P* value	Slight UI (0-5)[b]		Moderate UI (6-12)		Severe UI[e] (13-21)		*P* value
N[a](%)	1977	(68)	930	(32)		503	(55.2)	369	(40.5)	40	(4.4)	
Work role (N=2,870)												
Foundational	1422	(73.0)	684	(74.3)	0.544	379	(76.1)	264	(72.3)	27	(67.5)	0.095
Advanced	140	(7.2)	62	(6.7)		34	(6.8)	26	(7.1)	1	(2.5)	
Domain specific	302	(15.5)	128	(13.9)		68	(13.7)	50	(13.7)	7	(17.5)	
Assistant in Nursing	85	(4.4)	47	(5.1)		17	(3.4)	25	(6.8)	5	(12.5)	
Work setting (N=2,907)												
Hospital	1241	(62.8)	493	(53.0)	<0.001[d]	279	(55.5)	186	(50.4)	17	(42.5)	0.171
Community, General Practice	342	(17.3)	190	(20.4)		75	(14.9)	70	(19.0)	10	(25.0)	
Aged care, Rehabilitation	220	(11.1)	157	(16.9)		106	(21.1)	72	(19.5)	11	(27.5)	
Other	174	(8.8)	90	(9.7)		43	(8.5)	41	(11.1)	2	(5.0)	
Work contract (N=2,887)												
Full time	1093	(55.5)	414	(44.6)	<0.001[d]	232	(46.3)	158	(42.8)	14	(67.5)	0.422
Part time	727	(36.9)	439	(47.2)		229	(45.7)	178	(48.2)	24	(27.5)	
Pool or agency	151	(7.7)	75	(8.1)		40	(8.0)	33	(8.9)	2	(5.0)	
Work location (N=2,875)												
Metropolitan	1359	(69.4)	563	(61.5)	<0.001[d]	309	(62.4)	215	(59.1)	27	(67.5)	0.698
Inner regional	486	(24.8)	278	(30.3)		148	(29.9)	115	(31.6)	11	(27.5)	
Outer & beyond	114	(5.8)	75	(8.2)		38	(7.7)	24	(9.3)	2	(5.0)	
Shift work (N=2,906)												
Not days only	1106	(56.0)	464	(49.9)	0.002[c]	250	(49.7)	189	(51.2)	14	(35)	0.150
Job satisfaction (N=2,907)												
Dissatisfied	237	(11.9)	130	(14)	0.122	59	(11.7)	57	(15.4)	13	(32.5)	<0.001[c]
Intention to leave: (N=2,897)												
6 months	123	(6.2)	53	(5.7)	0.587	24	(4.8)	21	(5.7)	8	(20.0)	<0.001[c]
12 months	439	(22.1)	183	(19.8)	0.149	93	(18.6)	71	(19.3)	16	(40.0)	0.005[c]

UI: Urinary incontinence; ICIQUI-SF: International Consultation on Incontinence Urinary Incontinence-Short Form; (a) Total sample (N=2,907); (b) Sample for ICIQUI-SF N=912 (18 cases of reported UI excluded due to incomplete data for score calculation); (c) Comparison of UI and no UI: Chi Square test *P* value significant to the 0.05 level (two-tailed); (d) *P* value remained significant in 2x2 table; (e) Severity score 13-21 includes 'severe and very severe' UI.

Table 3. Severity of UI as a predictor of intention to leave at 12 months for nurses and midwives with UI.

Logistic regression	Predictor ITL at 12 months	OR	95% CI	P value[a]
Age adjusted[b]	Slight UI	1.0		
	Moderate UI	1.01	0.76 - 1.56	0.620
	Severe or very severe UI	3.33	1.64 - 6.74	0.001[a]
Fully adjusted[c]	Slight UI	1.0		
	Moderate UI	1.03	0.69 - 1.55	0.887
	Severe or very severe UI	2.68	1.18 - 6.06	0.018[a]

CI: Confidence interval; ITL: Intention to leave; OR: Odds ratio; UI: urinary incontinence.

(a) P value significant to the 0.05 level (two tailed); (b) Age adjusted results. Model statistics: $X^2 = 27.88$, df =5, n=814, p<0.001; (c) Fully adjusted results. Covariates included in the model: age, BMI, parity, pelvic organ prolapse, depression, anxiety, contract, shift and job satisfaction. Model statistics: $X^2 = 123.39$, df =14, n=814, p<0.001.

Supplementary material: Working table for predictor variables for entry into log regression for outcome 'intention to leave' at 12 months.

Health variable	*P* value	R
Age	0.568[d]	0.02
BMI ($\geq$30kg/m^2)	0.202[a]	0.043
Parity $\geq$ 1	0.002*	-0.099
Diabetes	0.454	0.025
Pelvic organ prolapse	0.12[c]	-0.051
Back pain	0.789	-0.009
Depression	0.072[b]	0.059
Anxiety	0.029[a]	0.072
UI severity	0.001[a]	0.109
Work variable		
Role	0.365	-0.03
Setting	0.571	0.01
Contract	0.142[b]	0.048
Location	0.968	0.001
Shift	0.269[d]	0.036
Job satisfaction	<0.001[a]	0.341

ITL: intention to leave; BMI Body Mass Index; R: Contingency Coefficient or Spearman's rho correlation. (a) *P* value significant $\leq$ 0.05 on Correlation or Chi square tests with 'intention to leave' at 12 months; (b) *P* value significance <0.25 included in the model.
(c) Variables placed into the log regression according to relationship with outcome variable 'intention to leave'; the model was checked for multi-collinearity. Prolapse retained in the model as no evidence of strong collinearity (Variance Inflation Factor < 2) with age, parity or BMI. Analyses based on sample with urine leakage. (d) 'Age' and 'Shift' included in the model based on literature (Perry et al. 2016). For health and work categorical descriptors refer to Tables 1 and 2