



## Original Article

## A Cross-Sectional Preview of Correlates of Treatment Delay of Urinary Incontinence

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## ABSTRACT

The prevalence of urinary incontinence in geriatric women and its silent endurance poses high emotional burden as stigma attached to this condition often leads to reluctance in seeking timely medical assistance. However, affirmation to common characteristics of delayed help seeking behaviour can identify vulnerable women for further assistance. **Objective:** To determine the correlates of treatment delay of urinary incontinence by evaluating common characteristics of those who had delayed their treatment. **Methods:** This cross-sectional study was conducted at Lady Willingdon Hospital's gynecology outdoors over a three-year period from June 1, 2019, to May 31, 2022. Out of 364 incontinent women, 198 participants were selected with ages above eighteen and incontinence for at least one year. Demographic information and UI-related factors of the participants were collected and evaluated by dividing data into short (less than or equal to three years) and long (greater than three years) delay groups. Correlates of treatment delay were determined by regression analysis using SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). **Results:** The respondents reported a treatment delay between one and thirty years; nearly half (59.60 percent) indicated a delay of more than three years. Age above fifty (odds ratio [OR]=11.39; confidence interval [CI]: 4.30-30.18), embarrassment (OR=3.63; CI: 1.19-11.12), lower subjective severity of symptoms (OR=6.31; CI: 2.06-19.35), and stress incontinence (OR=5.80; CI: 1.97-17.12) were significantly associated with treatment delay in regression analysis. **Conclusions:** In this study population, the correlates of treatment delay were age above fifty, embarrassment, lower subjective symptoms, and stress incontinence.

## INTRODUCTION

Urinary incontinence (UI) is a common geriatric problem in women. International Continence Society (ICS) has defined incontinence as the lower urinary tract symptom characterized by involuntary urine loss [1]. The prevalence of UI has been stated 27.6% in a meta-analysis [2]. In rural areas of Sindh, the prevalence of UI stands at 11.5% [3], contrasting with a prevalence rate of 25% in urban areas [4]. World Health Organization has designated UI as a priority health concern [5]. UI deteriorates women's quality of life (QOL) in two ways: physically by limiting their activities and psychologically by lowering their self-esteem [6]. Incontinent women also suffer from skin rashes, pruritis and recurrent urinary tract infections due to contact with urine-soiled cloths [7]. UI is a less severe

disease, therefore many incontinent women continue to postpone their treatment for years due to fear of social stigma [8]. Further, insufficiently informed health care professionals ignore symptoms of UI patients and declare them as incurable [9]. UI treatment is beneficial at any age, and even a slight improvement in symptoms can have considerable benefits [10]. These women need to be counseled and directed to receive medical care, but identifying the women who will not pursue their treatment is a great challenge to health care professionals. Previous researchers have uncovered characteristics of the women with delayed help seeking behaviour. Correlates of treatment delay are common characteristics of a group of delayed help seeking women; they can be enlisted on

outdoor tickets and their affirmation can point out the vulnerable woman who is likely to delay her treatment without additional support and encouragement. These factors vary in different countries depending on social and cultural attitudes and require separate researches in each location [11]. In Pakistani women, the common factors of UI treatment delay have not been assessed previously by other researchers. This study is a build-up of the previous work published by the author under the license CC BY 4.0 [12]. The objective of this study was to evaluate the correlates of treatment delay in urinary incontinence in Pakistani women.

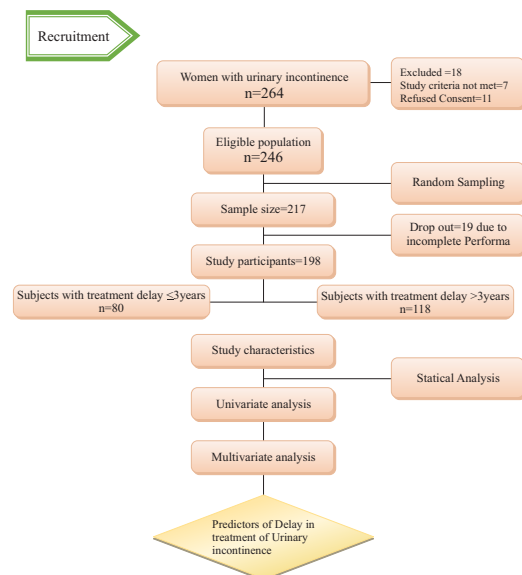
## METHODS

A cross-sectional study was conducted on urinary incontinent women in the Gynaecology department of Lady Willingdon Hospital, a King Edward Medical University affiliated hospital, from June 1, 2019, to May 31, 2022, after receiving Ethical approval from the University under IRB #711/RC/KEMU on May 2, 2019. We calculated the sample size of 217 participants for a population size of 400 (based on intelligent guess) at a 95% confidence level, 80% power, and a 10% dropout rate. A total 364 women presented with incontinence during the study period; 217 were randomly selected and completed the study questionnaires after providing written informed consent. Nineteen incomplete forms were discarded, and data from 198 completely filled survey forms were analyzed. Women with a history of urinary incontinence for at least one year and who had not previously sought treatment for the condition were assessed by medical officers trained in explaining the Performa and assisting in getting it filled. Inclusion criteria were a minimum age of 18 years and at least one episode of urine leakage per week for the previous three months. Exclusion criteria included urinary tract infection, pregnancy, women within three months postpartum or on waiting list for surgery for pelvic or abdominal masses, severe mental illness, terminal stage kidney or liver disease, or malignancy. Participants were selected by the chief investigator and provided written informed consent. Information on demographic characteristics, chronic illnesses, psychosocial effects of incontinence, and reasons for delay were collected using a self-designed survey form. Data was divided into two groups based on the duration of incontinence reported by the participants: short delay (less than or equal to three years) and long delay (more than three years) [13, 14]. Demographic variables included age group (pre or postmenopausal), marital status, parity, educational level, socioeconomic status, and employment status. Subjective and objective severity of symptoms and UI type were determined using the Urdu version of the International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI

SF). Subjective severity was determined by asking participant to point out on a visual analogue scale (score from 0-10) how much leaking urine interfered with their daily lives (ICIQ-UI SF question # 5); the response was recorded to create three degrees of UI severity: mild (0-3), moderate (4-7), and severe (8-10). The objective severity was determined based on response to questions 3 and 4 of the ICIQ-UI SF, namely how frequently did they lose urine (score: zero to five on the visual analogue scale) and how much urine they believed leaked (score: 2, 4 and 6 on the scale). The combined maximum score of both questions was up to 11, which was computed into three severity levels: mild (1-4), moderate (5-8), and severe (9-11). The UI type was determined using responses to ICIQ-UI SF question # 6 i.e. when does urine leak. If women were incontinent only during coughing, sneezing, physical activity or exercising, they had stress incontinence. Urinary leakage before reaching the toilet, while sleeping, or for no apparent cause, was suggestive of urgency incontinence. Positive responses to both types of questions indicated mixed incontinence. IBM SPSS version 20 was used to calculate the study's results (SPSS Inc., Chicago, IL, USA). The numerical data was calculated as the mean and standard deviation and nominal data as numbers and percentages. Univariate analysis was performed on all risk factors for treatment delay followed by multivariate analysis to eliminate factors with a low predictive value. A p-value of less than 0.05 was considered statistically significant.

## RESULTS

Total 364 incontinent women reported during the study period of three years; 198 women fulfilled the study criteria and were selected as participants as shown in figure 1.



**Figure 1:** Prisma flow diagram of recruitment and statistical analysis

The participants age ranged from 33 to 77 years (mean 57.21 ± 10.40 years), with only about one quarter under fifty. Over half of the participants experienced a delay of more than three years (59.60 percent). The mean basal metabolic index (BMI) was 28.34 ± 3.85 Kg/m<sup>2</sup>, ranging from 18.34 to 36.94 Kg/m<sup>2</sup>. The majority of participants were married with high parity, belonged to lower or middle socioeconomic groups, were less educated, and unemployed. Hypertension, diabetes, asthma, and cardiac disease were prevalent among incontinent women. The majority of participants were menopausal and experienced a longer delay. Participants with a high BMI (83.3 percent) outnumbered those with normal (15.7 percent) or low (1 percent) BMI. Majority (90.4 percent) were married, had high parity (58.1 percent), were less educated (60.6 percent illiterate), unemployed (80.3 percent), and came from lower and middle-income families (41.9 and 32.8 percent, respectively). Hypertension (33.8 percent), diabetes (33.3 percent), heart disease (10.1 percent), and asthma (10.6 percent) were common ailments. The delay in treatment was short for asthmatic patients, while all other chronic disorders were associated with a long delay. The characteristics of participants with urinary incontinence are summarized in table 1.

**Table 1:** Characteristics of the study population

Population Characteristics (n = 198)		Category/Mean ± SD	Number of participants (%)
Mean age (years)		57.21 ± 10.40 (33-77)	198 (100)
Mean delay (years)		5.83 ± 4.74 (1-30)	198 (100)
Mean age of long delay group		60.66 ± 9.768	118 (59.60)
Mean age of short delay group		52.13 ± 9.193	80 (40.40)
Basal metabolic rate (Kg/m <sup>2</sup> )		28.34 ± 3.85 (18.34-36.94)	198 (100)
Age groups	Premenopausal	31-40	15 (7.6)
		41-50	39 (19.7)
	Postmenopausal	51-60	70 (35.4)
		61-70	48 (24.2)
		71+	26 (13.1)
Marital status		Unmarried	19 (9.6)
		Married	179 (90.4)
Parity		Nullipara	25 (12.6)
		Low parity (1-3)	58 (29.3)
		High parity (4-6)	115 (58.1)
Socioeconomic status		Low	83 (41.9)
		Middle	65 (32.8)
		High	50 (25.3)
Education		Illiterate	44 (22.2)
		up to metric	120 (60.6)
		college and above	34 (17.2)
Employment status		Unemployed	159 (80.3)
		Working women	39 (19.7)
Chronic illnesses		Hypertension	67 (33.8)
		Diabetes	66 (33.3)
		Asthma	21 (10.6)
		Cardiac disease	20 (10.1)

The study characteristics and their associated treatment delays are summarized in table 2.

**Table 2:** The Demographic features and delay in treatment of incontinence

Variables		Number (%)	Duration of treatment Delay (Median range)
Age Groups According To Menopause (Years)	Premenopausal	54 (27.3)	2 (1-8)
	Postmenopausal	144 (72.7)	6 (1-30)
BMI (Kg/m <sup>2</sup> )	Underweight	2 (1)	3 (1-5)
	Normal	31 (15.7)	4 (1-9)
	Overweight	104 (52.5)	4 (1-24)
	Obese	61 (30.8)	6 (1-30)
Marital Status	Unmarried	19 (9.6)	4 (1-12)
	Married	179 (90.4)	5 (1-30)
Parity	Nullipara	25 (12.6)	3 (1-12)
	Low parity (1-3)	58 (29.3)	3 (1-15)
	High parity (4-6)	115 (58.1)	5 (1-30)
Socioeconomic Status	Low	83 (41.9)	5 (1-30)
	Middle	65 (32.8)	6 (1-19)
	High	50 (25.3)	3.5 (1-13)
Education	Illiterate	44 (22.2)	4.5 (1-20)
	Up to metric	120 (60.6)	5 (1-30)
	College and above	34 (17.2)	3.5 (1-13)
Employment Status	Unemployed	159 (80.3)	5 (1-30)
	Working women	39 (19.7)	3 (1-12)
Chronic Illnesses	Hypertension	67 (33.8)	7 (1-30)
	Diabetes	66 (33.3)	4 (1-24)
	Cardiac disease	20 (10.1)	5 (1-20)
	Asthma	21 (10.6)	3 (1-13)

In the long delay group, the majority of women were menopausal (53 versus 19.7 percent), whereas in the short delay group, premenopausal women were slightly more common (20.7 versus 19.7 percent). Menopausal age and high parity were significantly correlated with UI treatment delay shown in Table 3.

**Table 3:** Demographic features and treatment delay-Univariate analysis

Variables		Short Delay Number (%) n=80	Long Delay Number (%) n=118	N (%)	OR (CI)	p-value
Age Group	Premenopausal	39 (19.7)	105 (53)	144 (72.7)	8.49 (4.12-17.52)	<.0001*
	Postmenopausal	41 (20.7)	13 (6.6)	54 (27.3)	-	<.0001*
BMI groups	Underweight	1 (.5)	1 (.5)	2 (1)	-	.903
	Normal	11 (5.6)	20 (10.1)	31 (15.7)	1.82 (.103-31.99)	.683
	Overweight	44 (22.2)	60 (30.3)	104 (52.5)	1.36 (.08-22.40)	.828
	Obese	24 (12.1)	37 (18.7)	61 (30.8)	1.54 (.09-25.84)	.763
Marital Status	Unmarried	9 (4.5)	10 (5.1)	19 (9.6)	-	.819
	Married	71 (35.9)	108 (54.5)	179 (90.4)	1.369 (.530-3.536)	.517
Parity	Nullipara	13 (6.6)	12 (6.1)	25 (12.6)	-	.004*
	Low parity (1-3)	32 (16.2)	26 (13.1)	58 (29.3)	.880 (.344-2.253)	.790
	High parity (4-6)	35 (17.7)	80 (40.4)	115 (58.1)	2.476 (1.028-5.966)	.043*
Education	Illiterate	17 (8.6)	27 (13.6)	44 (22.2)	-	.46
	Up to metric	46 (23.2)	74 (37.4)	120 (60.6)	1.013 (.498-2.060)	.972
	College and above	17 (8.6)	17 (8.6)	34 (17.2)	.630 (.255-1.557)	.317
Employment Status	Unemployed	60 (30.3)	99 (50)	159 (80.3)	-	.125
	Working women	20 (10.1)	19 (9.6)	39 (19.7)	.576 (.284-1.165)	
Socioeconomic Status	Low	33 (16.7)	50 (25.3)	83 (41.9)	-	.217
	Middle	22 (11.1)	43 (21.7)	65 (32.8)	1.290 (.656-2.537)	.460
	High	25 (12.6)	25 (12.6)	50 (25.3)	.66 (.325-1.339)	.250
Chronic Illnesses	Hypertension	22 (11.1)	45 (22.7)	67 (33.8)	1.625 (.878-3.007)	.122
	Diabetes	27 (13.6)	39 (19.7)	66 (33.3)	.969 (.531-1.769)	.918
	Cardiac disease	6 (3)	14 (7.1)	18 (9.1)	1.66 (.610-4.521)	.321
	Asthma	12 (6.1)	9 (4.5)	21 (10.6)	.468 (.187-1.169)	.104

Regarding psychosocial effects, common responses included low self-esteem (39.9 percent) and feeling odd among others in gatherings, praying, and traveling in public transport (29.3 percent). Other responses included avoiding sex (15.7 percent) and feeling avoided by others (15.2 percent). Reasons for delaying treatment included feeling too embarrassed to disclose their problem (33.8 percent), waiting for spontaneous recovery, and using self-designed techniques to control urine (30.8 percent). Women also delayed treatment out of fear of surgery (15.7 percent) and believing that UI was due to their chronic illness or drugs (19.7 percent) and untreatable until their chronic disease was cured. Mixed incontinence was the most prevalent type (35.4 percent), followed by stress incontinence (32.3 percent) and urge incontinence (32.3 percent). Stress incontinence was the most common type among women who delayed their treatment shown in table 4. Univariate analysis showed that avoiding sex, feeling avoided by others, using self-designed urine control techniques, embarrassment, lower subjective severity of symptoms, and stress incontinence were significant factors.

**Table 4:** UI related factors and treatment delay-Univariate analysis

Variables		Short Delay n=80	Long Delay n=118	Total subjects n=198	OR (CI)	p-value
Psychosocial Effects	Low self esteem	32 (16.2)	47 (23.7)	79 (39.9)	.993 (.556-1.773)	.981
	Avoid sex	18 (9.1)	13 (6.6)	31 (15.7)	.426 (.196-.930)	.032*
	Feeling odd among others	23 (11.6)	35 (17.7)	58 (29.3)	1.045 (.559-1.952)	.890
	Feeling of being avoided by others	7 (3.5)	23 (11.6)	30 (15.2)	2.525 (1.027-16.206)	.044*
Reason for Delay	Waited for spontaneous recovery and used control techniques	32 (16.2)	29 (14.6)	61 (30.8)	.489 (.265-.902)	.022*
	Too embarrassed	11 (5.6)	56 (28.3)	67 (33.8)	5.666 (2.726-11.78)	<.0001*
	Fear of surgery	19 (9.6)	12 (6.1)	31 (15.7)	.363 (.165-.800)	.012*
	Symptoms are due to other diseases	18 (9.1)	21 (10.6)	39 (19.7)	.746 (.368-1.510)	.415
Subjective Severity of UI Symptoms	Mild	7 (3.5)	40 (20.2)	47 (23.7)	7.238 (2.842-18.434)	<.0001*
	Moderate	35 (17.7)	48 (24.2)	83 (41.9)	1.737 (.909-3.318)	.094
	Severe	38 (19.2)	30 (15.2)	68 (34.3)	-	<.0001*
Objective Severity of UI Symptoms	Mild	20 (10.1)	44 (22.2)	64 (32.3)	1.548 (.703-3.41)	.278
	Moderate	41 (20.7)	47 (23.7)	88 (44.4)	.807 (.392-1.659)	.559
	Severe	19 (9.6)	27 (13.6)	46 (23.2)	-	.165

Type Of UI	Stress incontinence	11 (5.6)	53 (26.8)	64 (32.3)	5.115 (2.459-10.639)	<.0001*
	Urgency incontinence	37 (18.7)	27 (13.6)	64 (32.3)	.345 (.187-.637)	.001*
	Mixed incontinence	32 (16.2)	38 (19.2)	70 (35.4)	.713 (.395-1.287)	.261

Values are means SD, (range) and number (proportions). Short delay=Delay < 3years, Long delay=Delay longer than 3years. OR (CI) =Odds ratio(Confidence interval), p-value of univariate analysis, Significant p-value < .05\*

Multivariate analysis revealed that menopausal women, those with lower subjective severity of symptoms, too embarrassed to discuss their problem, or experiencing stress incontinence were most vulnerable to treatment delay. Other significant factors from univariate analysis had low predictive value in multivariate analysis shown in table 5.

**Table 5:** Common factors of UI treatment delay-Multivariate analysis

Variables	OR (CI)	p- value
Menopausal Age Group	9.921 (3.977-24.747)	<.0001*
Mild Subjective Severity of Symptoms	4.904 (1.55-15.515)	.007*
Feeling Embarrassed	2.852 (1.212-6.710)	.016*
Stress Incontinence	8.216 (2.97-22.72)	<.0001*

Values are OR(CI) =Odds ratio (Confidence interval) of univariate analysis, P-value of multivariate analysis by forward LR, Significant p-value < .05\*

## DISCUSSION

Previous literature advises to apply health behaviour change theories to guide research on urinary incontinence [15]. However, only a few studies have focused on finding out the characteristics of women that correlate with delayed help-seeking behaviour [16]. Our study in Pakistani women identified menopausal age, embarrassment, lower subjective symptom severity, and stress incontinence as correlates of treatment delay. Menopausal age was a common characteristic among women who delayed treatment, consistent with international studies [17, 18]. Urinary incontinence is also one of the most well-known geriatric syndromes that has been recorded in the literature [19]. Despite being related to aging, UI is treatable even in frail individuals [20]. Surgical and nonsurgical therapies are available to improve bladder capacity and support the urethra [21, 22]. Unlike previous studies, demographic factors such as marital status, parity, education level, and socioeconomic status did not indicate treatment delay in our study [23]. Similarly, chronic medical conditions did not affect the time to seek medical care, highlighting the variability in UI correlates across different countries [24]. While previous research has shown psychosocial implications like sexual dysfunction and difficulty in praying as risk factors for treatment delay, our study found these to be less frequent and not significant correlates [25]. Embarrassment emerged as a strong predictor of delaying UI treatment, consistent with previous research citing embarrassment in

discussing the issue with others as a common reason for delay [16]. Other reasons for delay, such as waiting for spontaneous recovery, fear of surgery, and linking UI with other diseases, were also reported by patients in our study though results were insignificant [25]. Interestingly, while Objective UI severity is often a predictor of help-seeking behavior, our study found that lower subjective severity of symptoms, rather than objective severity, was associated with longer treatment delay [26]. Mixed incontinence was the most common type in our study population, differing from international trends where stress urinary incontinence (SUI) is more prevalent [27]. Our data reveals mixed incontinence as the commonest type in Pakistan although women with SUI are at a significant risk of delaying treatment. Researchers have found SUI a significant predictor of treatment delay and recommended personalized, customized programs for mild to moderate SUI [13]. However, women with SUI were significantly more likely to delay treatment, suggesting the need for personalized treatment programs, including lifestyle adjustments, Kegel exercises, and medications before considering surgery [28]. Despite limitations such as a small sample size and being a single-center study, our findings shed light on the factors contributing to treatment delay in UI among Pakistani women. Future research across different communities in Pakistan is needed to validate these results for clinical practice.

## CONCLUSIONS

Urinary incontinence is a highly neglected problem among women, leading to psychological issues. According to this study, the menopausal age, lesser severity of subjective complaints, embarrassment at disclosing the problem, and stress incontinence are correlates of treatment delay of UI which need to be focused to provide counselling and UI treatment. All women presenting with urinary incontinence should be evaluated for correlates of treatment delay, and the topic of incontinence should be brought to the attention of susceptible women to articulate their problems. In addition, as embarrassment has been identified as a significant factor in this and other studies, dedicated clinics should be established in each hospital to refer women to qualified medical professionals who can thoroughly examine their urinary problems in isolation and address their psychological and medical needs.



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## Authors Contribution

Conceptualization: AJ, AZE, SS

Methodology: AJ, AZE, SS

Formal analysis: AJ, AZE, SS

Writing-review and editing: AJ, AZE, SS

All authors have read and agreed to the published version of the manuscript.

## Conflicts of Interest

The authors declare no conflict of interest.

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