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Patient Satisfaction Following Midurethral Sling Surgery For Stress Urinary Incontinence

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Abstract

Objective—To identify factors that may contribute to patient satisfaction with outcome in women who received retropubic and transobturator midurethral slings.

Methods—Satisfaction was assessed 12 months postsurgery as a planned analysis in 597 participants from a multicenter randomized trial comparing retropubic to transobturator midurethral slings, using the Incontinence Surgery Satisfaction Questionnaire. Significantly related variables associated with satisfaction in univariable analyses were entered into multivariable logistic regression models to test their independent association with satisfaction.

Results—One year after surgery, 264 (88.6%) in the retropubic and 263 (88.0%) in the transobturator group completed satisfaction questionnaires. Both treatment groups demonstrated a high level of satisfaction with respect to urine leakage (retropubic 85.9% compared with transobturator 90.0%, $P=0.52$), urgency to urinate, frequency of urination, capability of physical activity, social activity, ability to engage in sexual activity, and from an emotional standpoint. Baseline characteristics associated with reduced satisfaction were higher Medical, Epidemiologic, and Social Aspects of Aging Questionnaire urgency subscale scores, detrusor overactivity, and diabetes mellitus. The severity of both objective (frequency of incontinence episodes, pad test

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weight) and subjective (Incontinence Impact Questionnaire and Urogenital Distress Inventory score) measures of incontinence at baseline, and the patients' perception of preoperative severity of incontinence and expectation of achieving postoperative cure or improvement were not statistically different between satisfied and unsatisfied patients. In the final multivariable model, satisfaction was associated with overall treatment success [odds ratio (OR) 2.57, 95% confidence interval (CI) 1.29, 5.13], greater reduction in Urogenital Distress Inventory [OR 0.97 (95% CI 0.96, 0.98)] and Incontinence Impact Questionnaire scores [OR 0.99 (95% CI 0.98, 0.99)], and fewer complications [OR 0.55 (95% CI 0.30, 0.99)].

Conclusion—The high level of satisfaction seen after midurethral sling procedures is associated with greater objective and patient-perceived improvement of stress incontinence and fewer complications.

Introduction

Patient satisfaction after stress incontinence surgery can be influenced by many factors, including inherent patient-specific expectations, postoperative continence status and complications. Mallett et al reported that patients with inappropriate treatment expectations who undergo stress incontinence surgery are at increased risk for dissatisfaction after surgery.¹ Participants in a large randomized surgical trial comparing the Burch colposuspension to the fascial sling (SISTER trial) experienced greater satisfaction related to better incontinence symptom control and reduced symptom distress in both treatment groups.² These investigators also reported that participants who had more preoperative urge incontinence symptoms were less likely to experience satisfaction postoperatively. In nonsurgical patient populations, satisfaction is also related to patient perception of improvement and reduced bother from incontinence-related symptoms.³

Midurethral slings are widely considered first-line surgery for treatment of female stress incontinence because of similar efficacy, yet reduced morbidity, as compared to historical operations including fascial slings and colposuspensions. Recently, the Urinary Incontinence Treatment Network reported equivalence for objective outcomes in 597 women who participated in a large randomized surgical trial comparing retropubic and transobturator midurethral slings, the Trial of Midurethral Slings (TOMUS).⁴ Although treatment success traditionally has been defined by cure rate and symptom improvement, patient reported outcomes, particularly satisfaction, have become increasingly recognized as complementary measures of success.

Thus, the objective of this planned analysis was to identify factors that may contribute to patient satisfaction with outcome. Factors considered were demographic variables and several clinical variables, including preoperative symptom severity, adverse events and treatment outcomes.

Methods

This planned analysis was conducted on data from participants in the Trial of Midurethral slings (TOMUS), a multicenter, randomized equivalence trial that compared outcomes of the retropubic or transobturator mid-urethral sling in women with symptoms of stress

predominant urinary incontinence for 3 or more months and a positive standardized stress test.⁴ Concomitant vaginal procedures were permitted, with the exception of any synthetic graft or anterior compartment biologic graft. All sites obtained local institutional review board approval, and participants provided written informed consent.

Details of the TOMUS trial design, methods and primary results have been reported.^{4,5} Briefly, eligible women were randomly assigned to surgical procedure in the operating room after anesthetic induction using a permuted block randomization schedule with stratification by clinical site. The specific midurethral sling procedures performed consisted of the original retropubic midurethral sling procedure, the Tension-free Vaginal Tape (TVT, Gynecare, Ethicon Women's Health & Urology, Somerville, NJ); and one of two transobturator midurethral sling procedures: the Tension-free Vaginal Tape-Obturator (TVT-O, Gynecare, Ethicon Women's Health & Urology, Somerville, NJ), which is placed starting inside the vagina and coming through the obturator foramen ("in-to-out"), or the Monarc (American Medical Systems, Minnetonka, MN), which is placed starting in the groin area, passing through the obturator foramen, and then into the vagina ("out-to-in").^{6,7} A total of 597 women were randomized to receive either a retropubic (n=298) or a transobturator (n=299) midurethral sling. There were no significant differences in baseline characteristics between the two groups with respect to demographic characteristics, risk factors for urinary incontinence, and severity of incontinence as measured by the Urogenital Distress Inventory, Incontinence Impact Questionnaire, Medical, Epidemiologic, and Social Aspects of Aging Questionnaire, pad test weight, and frequency of incontinence episodes.⁴ The mean Valsalva leak point pressure at baseline was slightly higher in the transobturator group but there was no difference in the maximal urethral closure pressures⁴. At 12 months postsurgery both objective and subjective cure rates in the two procedures were determined to be equivalent⁴.

Patient satisfaction was measured 6, 12 and 24 months following surgery with the Incontinence Surgery Satisfaction Questionnaire, a 9-item self-administered questionnaire developed by the Urinary Incontinence Treatment Network for study of incontinence procedures.^{1,2} These items measure patient satisfaction with the result of surgery and are divided into three domains related to 1) bladder symptoms of leakage, urgency and frequency, 2) physical, social and sexual activities previously restricted by urinary incontinence (UI) symptoms, and 3) emotions associated with their UI. Women responded based on a 5-point Likert-type scale as 1 (completely dissatisfied), 2 (mostly dissatisfied), 3 (neutral), 4 (mostly satisfied), or 5 (completely satisfied). Summary scores for each domain were calculated by averaging the items in each respective domain. Additionally a composite summary score was generated from the combined average of all items. A dichotomous response variable was created ("dissatisfied" versus "satisfied") for each summary scale. A participant was coded as "dissatisfied" if her summary scale score was less than 4, and "satisfied" if her summary score was 4 or greater.

Participants were also asked if they would choose to have the surgery again and if they would recommend it to a friend. In addition, the Patient Global Impression of Severity and Improvement questionnaires were administered to gather information regarding women's overall appraisals of their conditions and their responses to treatment.⁸ The Patient Global

Impression of Severity and Patient Global Impression of Improvement questionnaires have been shown to correlate significantly with incontinent episode frequency, pad test outcomes and Incontinence Quality of Life Questionnaire measures.

Factors hypothesized to predict satisfaction with surgical outcomes included demographic characteristics, medical co-morbidities, prior UI treatment, self-rated health, pelvic organ prolapse, type and severity of UI symptoms, UI symptom related distress, quality of life, and patient expectations of surgery. Demographic, anthropomorphic, clinical and urodynamic characteristics were recorded at baseline. Socioeconomic status was measured using the Nam-Powers Terrie Occupational Status Score.⁹ This measure assesses occupational status on the basis of educational requirements and expected salary with scores ranging from 0-100, (with higher scores indicating greater status). Self-assessment of overall health was determined using the Health Utilities Index measure of overall health, which yields scores ranging from 1 (excellent) to 5 (poor).¹⁰ Pelvic organ prolapse was assessed with the Pelvic Organ Prolapse Quantification (POP-Q) System.

Expectations of surgery were assessed preoperatively by the Incontinence Surgery Expectation Questionnaire, a 9-item questionnaire developed by the Urinary Incontinence Treatment Network as a complement to the satisfaction survey.¹ Women were asked to rate how much improvement in bladder symptoms, restrictions in physical, social and sexual activities and negative emotions they expected following their recovery from surgery. Each item of this expectation questionnaire was graded on a 5-point Likert-type scale as 1 (no better), 2 (slightly better), 3 (somewhat better), 4 (much better), or 5 (completely better). For data analysis purposes, a dichotomous response variable was created (“no better” versus “much better”) with “no better”, “slightly better”, “somewhat better” responses combined to define “no better”, and “much better” and “completely better” responses combined to define “much better.”

Type of urinary incontinence (stress versus urgency) and severity were assessed at baseline and at 6, 12, and 24 months post-operatively with the Medical, Epidemiologic, and Social Aspects of Aging Questionnaire, 3-day bladder diary, 24-hr pad test and a standardized provocative stress test.^{11,12} Standardized urodynamic testing was also administered at baseline to confirm urodynamic stress incontinence, identify detrusor overactivity, and quantify leak point and voiding pressures. The Medical, Epidemiologic, and Social Aspects of Aging questionnaire includes nine items on stress UI symptoms and six on urgency UI symptoms. Responses to stress and urgency items were summed to obtain a stress symptom score (ranging from 0 to 27) and an urgency symptom score (ranging from 0 to 18), with a higher Medical, Epidemiologic, and Social Aspects of Aging questionnaire symptom score indicating greater UI symptoms.

Condition-specific quality of life questionnaires were completed by women at baseline and then at 6, 12, and 24 months after surgery for comparison, and included the short forms of the Incontinence Impact Questionnaire and the Urogenital Distress Inventory^{13,14} The Incontinence Impact Questionnaire assesses the impact of UI on everyday life, whereas the Urogenital Distress Inventory assesses the impact of UI on various activities, roles, and emotional states. Patient bother was measured by the subscales of the Urogenital Distress

Inventory measuring stress UI symptoms, urgency symptoms and voiding symptoms. Adequate validity, reliability and sensitivity to change have been reported by the authors.^{13,14}

Complications and known side effects of surgery can dramatically impact patient satisfaction after treatment of quality of life disorders. As such complications, especially recurrent urinary tract infection, intraoperative bleeding, voiding dysfunction, vaginal epithelium and bladder perforation, mesh exposure, urgency urinary incontinence, and pain (beyond 6 week of surgery) were considered potential predictors of patient satisfaction. Adverse events were classified with a modified version of the Dindo classification system.¹⁵ A dichotomous response variable was created, where “adverse events” and “serious adverse events” were combined to define “complication” and compared with those patients who had “no complication”, and was used in bivariable and multivariable analyses.

Data were entered using a distributed data entry system, and analyzed with SAS version 9.2 (SAS Institute, Cary, NC) software. Associations of categorical variables with categorical measures of satisfaction were evaluated by cross classification and the chi-square test of homogeneity or Fisher's exact test. Associations of continuous variables with satisfaction were evaluated using logistic regression analysis. Variables significantly related to satisfaction in univariable analyses, along with clinically relevant variables, were entered into multivariable logistic regression models to test their independent association with satisfaction.

Results

Of the 597 women enrolled and randomized, 527 completed satisfaction questionnaires at 12 months: 264 (88.6%) in the retropubic and 263 (88.0%) in the transobturator group. Both treatment groups experienced high levels of satisfaction (Table 1) with 85.9% (225/262) in the retropubic and 90.0% (235/261) in the transobturator group reporting that they were either “mostly” or “completely” satisfied with respect to urine leakage, with no significant difference between the two routes of surgery ($P = 0.52$). The majority of patients were highly satisfied with respect to other measures on the questionnaire, specifically with urgency to urinate, frequency of urination, capability of physical activity, social activity, ability to engage in sexual activity, and from an emotional standpoint (Table 1) with no significant difference between the two procedures. Additionally, greater than 95% of participants in both sling groups indicated that they would still choose to have the surgery or recommend it to a family member or friend if they could go back in time with the knowledge and experience they acquired after the surgery.

The summary scores for each domain (symptom, activity, emotion) and the composite satisfaction summary score were compared for both routes of surgery (Table 2). There were no significant differences between the retropubic and the transobturator approach. The rates of satisfaction were essentially unchanged between 12 and 24 months postsurgery (data not shown) so we have presented the analysis of the 12 month follow-up only.

Baseline characteristics associated with reduced satisfaction were higher Medical, Epidemiologic, and Social Aspects of Aging questionnaire urgency subscale scores, detrusor overactivity, and diabetes mellitus (Table 3). There was no difference in proportion of participants who were satisfied and those who were not satisfied when the lower quartiles of the Valsalva leak point pressure or maximal urethral closure pressure values were examined. The severity of incontinence at baseline, both objective (as measured by incontinence episode frequency, pad test weight) and subjective (as measured by Incontinence Impact Questionnaire and Urogenital Distress Inventory score), was not statistically different between satisfied and unsatisfied patients. Patients' perception of preoperative global severity of incontinence and having a postoperative expectation of cure or being "completely better" did not alter the proportion of patient satisfaction between the two routes of surgery.

Not surprisingly, patients who were "mostly" or "completely satisfied" 12 months after midurethral sling placement were those who had fewer daily incontinence episodes, lower pad weights, lower scores on the Incontinence Impact Questionnaire and Urogenital Distress Inventory, greater improvement in the stress and urgency subscale of the Medical, Epidemiologic, and Social Aspects of Aging questionnaire, reported improvement on the Patient Global Impression of Improvement questionnaire, experienced more overall treatment success, and had fewer complications. Patients who had less nocturia, and less frequency of voids were also more satisfied (Table 3).

On univariable analysis, additional factors which appear to have influenced patients' perception of satisfaction were the amount of change in certain clinical variables they experienced from baseline presentation. Specifically, greater improvement in incontinence episode frequency, nocturia, voiding frequency, pad test weight, both stress and urgency subscales on the Medical, Epidemiologic, and Social Aspects of Aging questionnaire, scores on the Incontinence Impact Questionnaire and Urogenital Distress Inventory were all associated with greater levels of satisfaction 12 months after sling placement. Additionally, patients who were more satisfied had less number of complications overall and a lower proportion of severe adverse events.

In the final multivariable model (Table 4), patient satisfaction after midurethral sling was associated with overall treatment success, lower baseline Urogenital Distress Inventory scores and decrease in Urogenital Distress Inventory and Incontinence Impact Questionnaire scores. Patient satisfaction was also associated with fewer complications at 12 months, though this relationship had borderline statistical significance ($P = 0.05$).

Discussion

The results of this analysis show that the majority of women who underwent midurethral sling surgery were "mostly" or "completely" satisfied with their improvement in incontinence symptoms one year after surgery. Significant improvement of other lower urinary tract symptoms, such as urgency and frequency, were reported by most participants as well. Satisfaction with symptom improvement was associated with both objectively measured and patient-perceived improvement of stress incontinence, and fewer

complications. In addition, incontinence severity and urodynamic parameters at baseline did not predict post-operative satisfaction.

Although there are increasing numbers of randomized trials comparing the efficacy of various SUI surgeries, there is relatively little data regarding patient satisfaction. Initial studies of incontinence treatments focused on objective outcomes, such as urodynamic measures and incontinence episodes to define success. However, it has become apparent that patient perceived success and satisfaction are important dimensions to include, so as to consider the broader impact of surgery on daily function, de novo pelvic floor symptoms,¹⁶ or postoperative healing.¹⁷ We believe our study supplements the literature on satisfaction with surgical treatment of stress urinary incontinence. Besides examining satisfaction in two additional procedures, more importantly, the study provides data on a number of different aspects of and which domain of satisfaction is altered by surgery. There are multiple components that can contribute to a patient's satisfaction; how these change in response to therapy may not be evident from studying a single item that only asks whether the patient is satisfied or not². Patient centered outcomes are increasingly recognized as we move forward with comparative effectiveness trials for pelvic floor disorders. Accordingly, assessing patient impression of severity and perceived improvement, we found that patients' global impression of improvement after SUI surgery was highly predictive of being “mostly” or “completely” satisfied.

Patients had high expectations at baseline that SUI surgery would cure or greatly improve urine leakage, and resolve urinary urgency, frequency, as well as incontinence related issues with sexual activity and embarrassment. One might theorize that failure of the SUI procedure to resolve all of these symptoms would result in greater patient dissatisfaction. We did not find that women's preoperative expectations impacted satisfaction with midurethral sling surgery, perhaps because most women reported they were “mostly” or “completely” satisfied with improvement in these symptoms and therefore considered their surgery to be successful. In cases like these where surgical procedures result in such symptom improvement, the level of satisfaction may be so high that differences are difficult to discern due to a ceiling effect. One of the important limitations of the current study is the potential bias of measuring satisfaction with treatment in a large clinical trial setting. With increased number of contacts and communications between subjects and members of the research team, coupled with the tendency of subjects not to report dissatisfaction with a treatment outcome, the perception of satisfaction may be inflated.¹⁸⁻²⁰

Our findings that greater reduction in SUI symptoms and symptom bother were associated with patient satisfaction is consistent with predictors of patient satisfaction in the SISTER population.² However, the SISTER trial also found that patients with greater urge urinary incontinence (UUI) symptoms at baseline and detrusor overactivity at 24 months had lower odds of being satisfied with their surgical outcomes. This contributes to an emerging body of literature describing the effects of preoperative UUI on SUI surgery outcome. The majority of authors have reported that greater baseline UUI symptoms predict increased odds of failure and lower patient satisfaction after SUI surgery, suggesting that patients with mixed urinary incontinence having a significant UUI component should be counseled accordingly.^{2,16,21,22} While we found that higher baseline Medical, Epidemiologic, and

Social Aspects of Aging Questionnaire urgency scores were associated with less post-operative patient satisfaction in the univariable analysis, this association did not persist in the final multivariable model.

Complications also predicted lower patient satisfaction. Although de novo or worsening overactive bladder symptoms may independently predict SUI surgery failure and dissatisfaction, Davis et al showed that the need for a sling release in the early postoperative period (less than 6wks) was the factor most predictive of dissatisfaction 1 year after a TVT sling, even if patients remained continent.²³ Others have shown that postoperative complications, detrusor overactivity, and urinary retention were associated with overall dissatisfaction¹⁶.

Our study findings are strengthened by the study design, a multi-center comparative effectiveness trial with diverse surgeons from both urology and urogynecology, which limits potential bias and contributes to the generalizability of the results. Although extensive preoperative clinical and demographic data were collected, as well as validated objective and subjective outcome measures, there are other factors that could affect satisfaction such as patient preparedness and goal achievement that were not assessed. Nonetheless, the use of patient expectations and patient perceived improvement measures to predict satisfaction emphasizes the importance of including patient reported outcomes along with more traditional objective measures of improvement when assessing SUI treatment outcomes.

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Table 1

Individual Satisfaction at 12 Months by Treatment Assignment

	Retropubic	Transobturator	<i>P</i> *
	n = 264	n = 263	
Urine leakage			
Completely dissatisfied	12 (4.6)	9 (3.5)	0.52
Mostly dissatisfied	16 (6.1)	11 (4.2)	
Neutral	9 (3.4)	6 (2.3)	
Mostly satisfied	51 (19.5)	63 (24.1)	
Completely satisfied	174 (66.4)	172 (65.9)	
Urgency to urinate or fear not making it to bathroom			
Completely dissatisfied	12 (4.9)	7 (2.8)	0.20
Mostly dissatisfied	16 (6.6)	11 (4.4)	
Neutral	19 (7.8)	21 (8.4)	
Mostly satisfied	78 (32.0)	66 (26.3)	
Completely satisfied	119 (48.8)	146 (58.2)	
Frequent urination			
Completely dissatisfied	11 (4.5)	9 (3.8)	0.46
Mostly dissatisfied	11 (4.5)	8 (3.4)	
Neutral	33 (13.4)	21 (8.8)	
Mostly satisfied	63 (25.6)	70 (29.3)	
Completely satisfied	128 (52.0)	131 (54.8)	
Physical activities			
Completely dissatisfied	10 (3.9)	8 (3.1)	0.90
Mostly dissatisfied	16 (6.2)	12 (4.6)	
Neutral	6 (2.3)	7 (2.7)	
Mostly satisfied	42 (16.2)	46 (17.6)	
Completely satisfied	186 (71.5)	189 (72.1)	
Social activities			
Completely dissatisfied	10 (3.9)	12 (4.7)	0.49
Mostly dissatisfied	9 (3.5)	4 (1.6)	
Neutral	10 (3.9)	6 (2.3)	
Mostly satisfied	26 (10.1)	30 (11.7)	
Completely satisfied	202 (78.6)	205 (79.8)	
Sexual activity			
Completely dissatisfied	8 (4.2)	8 (4.3)	0.91
Mostly dissatisfied	4 (2.1)	3 (1.6)	
Neutral	12 (6.3)	14 (7.6)	
Mostly satisfied	22 (11.5)	26 (14.1)	

	Retropubic	Transobturator	<i>P</i> *
	n = 264	n = 263	
Completely satisfied	146 (76.0)	134 (72.4)	
Emotions			
Completely dissatisfied	9 (3.4)	12 (4.7)	0.17
Mostly dissatisfied	18 (6.9)	7 (2.8)	
Neutral	10 (3.8)	7 (2.8)	
Mostly satisfied	28 (10.7)	35 (13.8)	
Completely satisfied	197 (75.2)	193 (76.0)	
Would you still have the surgery			
Yes	249 (94.3)	252 (95.8)	0.43
No	15 (5.7)	11 (4.2)	
Would you recommend this surgery			
Yes	251 (95.4)	254 (96.6)	0.50
No	12 (4.6)	9 (3.4)	

Data are frequency (%) unless otherwise specified.

* chi-square, comparison between retropubic and transobturator.

Table 2

Satisfaction Summary Scores For Each Domain and Composite of All Domains at 12 Months Postsurgery

Satisfaction Domain		Retropubic	Transobturator	<i>P</i> *
Symptom	Dissatisfied	9 (3.4)	4 (1.5)	0.26
	Satisfied	255 (96.6)	259 (98.5)	
Activity	Dissatisfied	9 (3.5)	8 (3.0)	0.81
	Satisfied	251 (96.5)	255 (97.0)	
Emotion	Dissatisfied	37 (14.1)	26 (10.2)	0.18
	Satisfied	255 (85.9)	228 (89.8)	
Composite summary	Dissatisfied	49 (18.6)	41 (15.6)	0.42
	Satisfied	215 (81.4)	222 (84.4)	

Data are frequency (%) unless otherwise specified.

* Chi-square test, comparison between retropubic and transobturator.

Table 3

Participant Characteristics by Satisfaction Summary Score at 12 Months Postsurgery

Covariate	Dissatisfied (n = 90)	Satisfied (n = 437)	P
Patient Characteristics			
Treatment assignment, n (%)			
Retropubic sling	49 (54)	215 (49)	0.36 ¹
Transobturator sling	41 (46)	222 (51)	
Age, mean ± SD, years	54.8±10.8	53.4±10.8	0.26 ²
Race and ethnic group, n (%)			
Hispanic	9 (10)	52 (12)	0.46 ¹
Non-Hispanic white	76 (84)	348 (80)	
Non-Hispanic black	3 (3)	11 (3)	
Non-Hispanic other	2 (2)	26 (6)	
Education			
High school or less	32 (36)	130 (30)	0.52 ¹
Some post-high school training	29 (35)	161 (37)	
Baccalaureate or more	29 (32)	146 (33)	
Social economic status–occupational score, mean ± SD	60.4±22.7	59.6±22.9	0.78 ²
Self-assessment of overall health, n (%)			0.25 ¹
Excellent	21 (23)	112 (26)	
Very good	43 (48)	183 (42)	
Good	119 (21)	105 (24)	
Fair or poor	7 (8)	35 (8)	
Current smoker, n (%)	13 (14)	51 (12)	0.46 ¹
Hormone replacement therapy, n (%)			
No	40 (45)	178 (41)	0.36 ¹
Yes	21 (24)	136 (31)	
Pre-menopausal	28 (31)	122 (28)	
Diabetes, n (%)	12 (13)	24 (5)	0.007 ¹
Body Mass Index, mean ± SD	30.9±6.7	30.0±6.5	0.22 ²
Pelvic Organ Prolapse Quantification Stage, n (%)			
Stage 0/I	41 (46)	192 (44)	0.95 ¹
Stage II	41 (46)	207 (47)	
Stage III/IV	8 (9)	38 (9)	
Prior urinary incontinence surgery, n (%)	58 (65)	244 (56)	0.11 ¹
Baseline characteristics			
Incontinence episodes per day, median (10 th , 90 th percentile),	2.7 (0.3, 7.7)	2.7 (0.7, 6.7)	0.87 ²
Nocturia, median (10 th , 90 th percentile)	1.0 (0, 2.3)	1.0 (0, 2.3)	0.17 ²

Covariate	Dissatisfied (n = 90)	Satisfied (n = 437)	P
Frequency of voids, median (10 th , 90 th percentile)	9.3 (6.0, 13.0)	8.7 (6.0, 13.0)	0.46 ²
Pad test weight, grams, median (10 th , 90 th percentile)	13.7 (3.4, 140.4)	13.5 (3.8, 84.1)	0.27 ²
Urinary Incontinence symptom score (Medical, Epidemiologic, and Social Aspects of Aging questionnaire)			
Stress score, mean ± SD	19.5±4.7	19.4±4.7	0.73 ²
Urge score, mean ± SD	7.1±4.0	6.2±3.9	0.04 ²
Incontinence Impact Questionnaire score, mean ± SD	150.9±95.6	149.8±97.9	0.92 ²
Urogenital Distress Inventory score, mean ± SD	140.3±43.4	132.4±43.8	0.12 ²
Detrusor overactivity, n (%)	16 (18)	45 (10)	0.04 ^I
Concomitant surgery, n (%)	24 (27)	108 (25)	0.70 ^I
Patient Global Impression of Severity (overall global impression), n (%)			0.48 ^I
Normal	8 (9)	44 (10)	
Mild	6 (7)	50 (11)	
Moderate	46 (51)	219 (50)	
Severe	30 (33)	122 (28)	
Baseline expectation, mean ± SD	4.2±0.7	4.3±0.5	0.10 ²
Baseline expectation of urine leakage after surgery (better or completely better), n (%)	47 (52.2)	231 (53.1)	0.88 ^I
Characteristics at 12 month follow-up			
Incontinence episodes per day, median (10 th , 90 th percentile)	0.3 (0, 4.3)	0 (0, 0.7)	<0.001 ²
Nocturia, median (10 th , 90 th percentile)	1.0 (0, 2.7)	0.7 (0, 1.7)	0.002 ²
Frequency of voids, median (10 th , 90 th percentile)	8.5 (5.7, 11.0)	7.3 (5.0, 10.7)	0.002 ²
Pad test weight, grams, median (10 th , 90 th percentile)	5.3 (2.1, 49.3)	3.2 (1.1, 7.2)	0.002 ²
Urinary Incontinence symptom score (Medical, Epidemiologic, and Social Aspects of Aging questionnaire)			
Stress score, mean ± SD	7.0±7.3	1.4±2.7	<0.001 ²
Urge score, mean ± SD	4.3±3.8	1.3±1.9	<0.001 ²
Incontinence Impact Questionnaire score, mean ± SD	70.0±79.5	9.9±28.5	<0.001 ²
Urogenital Distress Inventory score, mean ± SD	68.3±50.8	16.3±22.4	<0.001 ²
Detrusor overactivity, n (%)	10 (13)	33 (8)	<0.001 ^I
Patient Global Impression of Improvement (Very much better or much better), n (%)	41 (48)	418 (99)	<0.001 ^I
Overall treatment success, n (%)	17 (19)	268 (61)	<0.001 ^I
Complications (adverse effect or serious adverse effect by 12 months), n (%)	54 (60)	154 (35)	<0.001 ^I
Complication classification (by 12 months), n (%)			<0.001 ^I
No adverse effect or serious adverse effect	36 (40)	283 (65)	
Adverse effect only	39 (43)	117 (27)	

Covariate	Dissatisfied (n = 90)	Satisfied (n = 437)	P
Serious adverse effect	15 (17)	37 (8)	

SD, standard deviation.

¹P-value determined by chi-square test of association with satisfaction.

²P-value determined by logistic regression (Wald statistic) on satisfaction.

Table 4

Final Multivariable Logistic Regression Model Factors Associated With Patient Satisfaction at 12 Months

	OR (95% CI)	P
Midurethral sling assignment (retropubic vs transobturator)	0.65 (0.36, 1.20)	0.17
Overall treatment success vs failure	2.57 (1.29, 5.13)	0.008
Detrusor overactivity at baseline vs none	0.54 (0.24, 1.23)	0.14
Medical, Epidemiologic, and Social Aspects of Aging questionnaire urge score at baseline (+1 unit)	0.96 (0.87, 1.05)	0.35
Baseline expectation of urine leakage after surgery (better or completely better vs no change or worse)	1.05 (0.57, 1.92)	0.88
Urogenital Distress Inventory score at baseline (+1 unit)	0.97 (0.96, 0.99)	<0.001
Urogenital Distress Inventory difference from baseline score (+1 unit)	0.97 (0.96, 0.98)	<0.001
Incontinence Impact Questionnaire score at baseline (+1 unit)	0.99 (0.99, 1.00)	0.07
Incontinence Impact Questionnaire difference from baseline score (+1 unit)	0.99 (0.98, 0.99)	<0.001
Complications vs none	0.55 (0.30, 0.99)	0.05

OR, odds ratio; CI, confidence interval.