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## IMPACT OF CHILDHOOD AND RECENT TRAUMATIC EVENTS ON THE CLINICAL PRESENTATION OF OVERACTIVE BLADDER

H. Henry Lai, Clinton D. Morgan, Joel Vetter, and Gerald L. Andriole

Division of Urologic Surgery, Department of Surgery, Washington University School of Medicine, St Louis, MO

### Abstract

**Aims**—(1) To describe the prevalence of childhood and recent trauma in patients with overactive bladder (OAB), and (2) assess the impact of traumatic events on the clinical presentation and the severity of OAB symptoms, quality of life, and psychosocial health.

**Methods**—Patients diagnosed with OAB (n=51) and age-matched healthy controls (n=30) were administered the Childhood Traumatic Events Scale and Recent Traumatic Events Scale, assessing exposure and perceived impact of common traumatic events. Among OAB patients, validated instruments were administered to correlate traumatic exposure to evaluate adult urinary symptoms (ICIQ-UI, ICIQ-OAB, OAB-q, UDI-6, IIQ-7, USS), mood dysregulation (HADS), sleep and fatigue (PROMIS), and psychological stress (PSS).

**Results**—Childhood sexual trauma was more prevalent in patients with OAB compared to controls (29.4% vs. 6.7%,  $p=0.041$ ). OAB patients also rated their childhood sexual exposure as more traumatic compared to controls (mean ratings of 1.7 vs. 0.4,  $p=0.050$ ). There was no difference in childhood deaths ( $p=0.24$ ), parental upheaval ( $p=0.87$ ), violence ( $p=0.099$ ), illness/injury ( $p=0.683$ ), or any recent traumatic events between OAB and control subjects.

Childhood trauma predicted worse bladder pain ( $p=0.005$ ), worse non-urologic pain ( $p=0.017$ ), poorer mood ( $p=0.001$ ), higher anxiety ( $p=0.029$ ), higher physical symptom burden ( $p<0.001$ ), and higher psychological stress ( $p<0.039$ ). However, childhood trauma did not correlate with the severity of OAB symptoms (urgency, frequency, incontinence).

**Conclusions**—30% of OAB patients reported childhood sexual trauma. These patients report more pain symptoms, poorer mood, and greater somatic burden. These data highlight the potentiating role of psychosocial stressors from childhood in the adult suffering from OAB.

### INTRODUCTION

Overactive bladder (OAB) affects nearly 33 million adults in the US, with substantial effects on health-related quality of life, sexual function, mental health, and work productivity. Several psychosocial risk factors have been identified, including depression, anxiety, alcohol intake, high body mass index, and a history of abuse.<sup>1,2</sup>

Studies have suggested that abuse might be a risk factor for the development of lower urinary tract symptoms (LUTS). In the Boston Area Community Health (BACH) survey, adults who reported sexual, physical, or emotional abuse were more likely to have urinary frequency, urgency, and nocturia symptoms.<sup>3</sup> Female veterans who were referred to urology clinic for the evaluation of LUTS were also more likely to report a history of sexual trauma compared to patients seen in primary care clinics.<sup>4</sup> A few studies have examined OAB and urgency urinary incontinence (UI) more specifically. Female patients with OAB or urgency UI were more likely to report a history of sexual or physical abuse compared to patients with stress incontinence or no urinary complaints.<sup>5,6</sup> In female veterans who recently returned from military deployment, OAB symptoms were associated with depression, anxiety, and history of sexual assault.<sup>2</sup>

Most previous work has focused primarily on sexual or physical abuse.<sup>2-6</sup> However, other traumatic events and major upheavals in life, such as death of a family member, divorce or separation of parents, etc have not been reported. Also, the distinction between childhood and recent traumatic events was not made. Most previous studies have studied either the presence or absence of a traumatic event (“yes or no”), but do not inquire about the severity of trauma perceived by the subjects. The severity of trauma perceived by the subjects may vary depending on their specific circumstances, and this information was better captured by subject ratings instead of a simple “yes or no” response to exposure. Moreover, the impact of traumatic events on symptom severity and quality of life of patients with OAB has not been fully elucidated. It is unclear whether, or how, traumatic events influence the clinical presentation of OAB patients.

Moving beyond previous work, we: 1) investigated broader categories of traumatic events besides sexual and violent trauma, 2) made the distinction between childhood and recent traumatic events in our assessment, 3) asked subjects to rate the perceived severity of trauma, and 4) determined if there was a dose-response relationship between the intensity of trauma and the severity of their symptoms. The objectives of this study are to: (1) describe the prevalence of childhood and recent trauma in clinical sample of patients with OAB, and (2) assess the impact of traumatic events on the severity of OAB/UI symptoms, quality of life, and psychosocial health.

## MATERIALS AND METHODS

### Subjects

Between October 2012 and July 2014, patients diagnosed with OAB and age-matched healthy controls were recruited into this questionnaire-based study that inquired about childhood and recent traumatic experiences. Enrollment criteria for the OAB cohort were defined by standards outlined by the 2002 ICS (International Continence Society) report: complaints of urinary urgency, with or without urgency incontinence, usually with frequency and nocturia, in the absence of infection or other identifiable causes.<sup>7</sup> The clinical assessment of OAB followed the published AUA guidelines.<sup>8</sup> Patients with a positive culture or a post-void residual  $\geq 150$  mL were excluded. Age-matched healthy controls, recruited both by a local research database and advertisement, had to have AUA symptom index  $<7$  (no to minimal LUTS), no prior diagnosis of OAB, no urinary urgency, no bladder or pelvic

pain, and no evidence of infection. All participants signed an informed consent. The Washington University School of Medicine Institutional Review Board approved this study. A total of 51 patients with OAB and 30 healthy controls were consented and enrolled. Subject characteristics were presented in **Table 1**. There was no age or sex difference between OAB patients and controls ( $p=0.88$  and  $0.14$  respectively).

### **Assessment of childhood and recent traumatic events**

The Childhood Traumatic Events Scale (CTES)<sup>9</sup> is commonly used, including in a study of IC/BPS (interstitial cystitis/bladder pain syndrome),<sup>10</sup> to assess the presence and impact of historical traumatic events. The CTES assesses childhood traumatic events that occurred prior to the age of 17. Domains include death of a family member or a very close friend, parental divorce or separation, traumatic sexual experience (e.g., raped, molested), victim of violence (e.g., child abuse, mugged or assaulted), been extremely ill or injured, and other major upheaval. For each question, the participant is queried regarding the age of trauma, perceived intensity of the trauma, and whether or not the trauma was confided to others. The Recent Traumatic Events Scale (RTES)<sup>9</sup> assesses the same domains with three exceptions: the timeframe is within the last 3 years, parental separation is replaced with separation/divorce from a spouse or significant other, and a new category of job change is added.

The CTES and RTES use rating scales to assess the severity of trauma perceived by the participants. Each domain is scored from 0 to 7, 0=no exposure, 1=not at all traumatic, 4=somewhat traumatic, 7=extremely traumatic. To operationalize the assessment of childhood traumatic burden, we summed up the ratings on each of the 6 domains on the CTES to derive a score (childhood traumatic burden) that ranged from 0 to 42 (6 domains X rating up to 7 for each domain). Similarly, the recent traumatic burden was derived from ratings on the RTES.

### **Assessment of OAB/UI symptoms and pain**

The International Consultation on Incontinence – Urinary Incontinence Short Form (ICIQ-UI)<sup>11</sup> and Overactive Bladder Short Form (ICIQ-OAB)<sup>12</sup> assessed the severity of UI and OAB symptoms, respectively. The OAB-q Short Form<sup>13</sup> contains a symptom bother subscale (6-item) and a quality of life subscale (13-item). The 6-item Urogenital Distress Inventory (UDI-6)<sup>14</sup> queries frequency, leakage, incomplete voiding, and discomfort while voiding. The 7-item Incontinence Impact Questionnaire (IIQ-7)<sup>14</sup> focuses on how urine leakage affects common activities of daily living. The Indevus Urgency Severity Scale (USS)<sup>15</sup> is a patient-reported measure of urgency severity from 0-3 (none to severe) using examples to aid patient self-assessment. Subjects were also asked to rate their urgency symptoms, urinary frequency, bladder pain, and non-urologic pain on four separate numeric rating scales (0 to 10).

### **Assessment of psychosocial factors**

Anxiety and depression symptoms were assessed using the Hospital Anxiety and Depression Scale (HADS-A and HADS-D).<sup>16</sup> The HADS is a self-administrated scale that assesses anxiety and depression (seven items each). The HADS-A and HADS-D have reported sensitivity of 90% and 83% for anxiety and depression respectively. The Polysymptomatic,

Polysyndromic Questionnaire (PSPS-Q)<sup>17</sup> is a self-assessment of 59 symptoms used to identify patients who report high symptom burden across multiple organ systems in a specific pattern that is characteristic of somatization. The PROMIS-Sleep-8B<sup>18</sup> and PROMIS-Fatigue-7A<sup>18</sup> were used to assess sleep quality and the impact of fatigue on daily life in the past 7 days, using 5 graded response options for each question. The Perceived Stress Scale (PSS)<sup>19</sup> was used to measure the degree to which situations in one's life are perceived as being stressful. Finally, subjects were asked to rate their mood on a 0-10 numeric rating scale (0=extremely good mood, 10=extremely bad mood).

## Statistics

We used multivariate logistic regression models controlling for sex to compare the exposure of traumatic events between OAB and control subjects (**Table 2**). Controlling for sex, multivariate linear regression models were used to compare the traumatic ratings between OAB and controls (**Table 2**). Even though there was no statistical difference in sex between the OAB and control groups (73% vs. 57% females,  $p=0.14$ ), regression was performed to control for sex since subjects in the two groups were not sex-matched. Spearman's correlation analysis was performed to examine the relationships between childhood traumatic burden, urologic symptoms, and other psychosocial factors (**Tables 3 & 4**).  $p$ -values were calculated for the correlation using two-tailed tests using a  $t$ -approximation testing the null hypothesis of no correlation.  $p<0.05$  (two-tailed) was considered significant. All statistical analysis was completed using the open source package R v2.15.1 (<http://www.R-project.org>).

## RESULTS

### Childhood traumatic events (prior to the age of 17)

Childhood sexual trauma (assault, molestation, etc.) was more prevalent in patients with OAB compared to age-matched controls (29.4% vs. 6.7%,  $p=0.041$ , **Table 2**). The average age of the OAB subjects was  $12.1 \pm 3.7$  when the childhood sexual trauma happened. There was no difference in exposure to other childhood trauma including deaths ( $p=0.24$ ), parental upheaval ( $p=0.87$ ), violence ( $p=0.099$ ), or illness/injury ( $p=0.68$ ) between OAB and controls.

OAB patients rated their childhood sexual events as more traumatic compared to controls (rating of 1.71 vs. 0.40,  $p=0.050$ ). There was no difference in the perceived severity of trauma with respect to deaths, parental upheaval, childhood violence, or illness/injury. There was a trend towards higher childhood traumatic burden in OAB patients (11.0 versus 6.6, or 67% higher) but the difference was not statistically significant ( $p=0.075$ ).

### Recent Traumatic Events (within the past 3 years)

There was no difference in recent traumatic events between OAB and controls in any of the domains listed in **Table 1**. 24% (12/51) of OAB patients had symptom onset less than one year. To determine if recent exposure to trauma might predate the onset of OAB symptoms, we compared recent traumatic events between OAB patients with recent onset of symptoms (<1 year) versus those with symptoms more than one year. There was no difference in recent

traumatic events within the past 3 years between the two OAB patient groups (data not shown).

### **Correlation between childhood trauma burden and the severity of symptoms in the OAB population**

As mentioned earlier, to determine if there is a correlation between childhood trauma burden and the severity of their symptoms, we performed Spearman's correlation analysis to examine the relationships between childhood traumatic burden, OAB/UI symptoms, OAB/UI quality of life measures, pain symptoms, and other psychosocial factors (**Tables 3 & 4**).

Within the OAB group, there were positive correlations between higher childhood traumatic burden and more severe bladder pain ( $p=0.005$ , Spearman's correlation coefficient  $\rho=0.39$ ), more severe non-urologic pain ( $p=0.017$ ,  $\rho=0.34$ ), poorer mood ( $p=0.001$ ,  $\rho=0.45$ ), higher anxiety ( $p=0.029$ ,  $\rho=0.31$ ), higher physical symptom burden ( $p<0.001$ ,  $\rho=0.52$ ), and higher psychological stress ( $p<0.039$ ,  $\rho=0.30$ , see **Table 3**). There was no correlation between childhood traumatic burden and any of the OAB/UI symptom measures, OAB/UI quality of life measures, depression, sleep quality, or fatigue ( $p>0.05$ ).

Since some of the instruments assess more than one urinary symptom (for example, ICIQ-OAB has four separate questions on UI, urgency, frequency and nocturia), just to be thorough, we also performed correlation analysis by separating out the individual urinary symptom (UI, urgency, frequency, nocturia, difficulty urinating), see **Table 4**. Again, no correlation was found between the individual symptom and childhood traumatic burden.

## **DISCUSSION**

Despite reports that LUTS/OAB symptoms might be associated with a history of sexual or physical trauma,<sup>2,5,6</sup> it remains unclear whether, or how, these traumatic events might influence the clinical presentation of OAB. Exposure to trauma has previously been shown to influence the clinical presentation of IC/BPS – a urologic syndrome that shares some overlapping symptoms with OAB (e.g. urgency, frequency).<sup>20</sup> Specifically, IC/BPS patients with a history of sexual abuse had more pain and fewer voiding problems than those who had no history of sexual abuse.<sup>21</sup> Here we (1) described the prevalence of childhood and recent trauma in clinical sample of patients with OAB, and (2) assessed the impact of traumatic events on the severity of OAB/UI symptoms, quality of life, and psychosocial health.

The main findings of the study are: (1) Childhood sexual trauma are more prevalent in OAB patients than controls; (2) Close to 30% of OAB patients reported a history of childhood sexual trauma; (3) Childhood trauma does not correlate with more severe OAB/UI symptoms in adulthood; (4) There were positive correlations between childhood traumatic burden and worse bladder pain, worse non-urologic pain, poorer mood, higher anxiety, physical symptom burden, and psychological stress; (5) There was no difference in other types of childhood trauma; (6) There was also no difference in recent traumatic events

between OAB and controls; and (7) Recent exposure to trauma (within the past 3 years) does not predate the onset of OAB symptoms.

To our knowledge, only two prior studies have examined the relationship between sexual trauma and the severity of LUTS symptoms.<sup>2,4</sup> The results were conflicting. Klausner et al compared the UDI-6 and IIQ-7 between veterans in LUTS clinic who had sexual trauma versus those who did not, and showed no differences in UDI-6 and IIQ-7 total scores between the two groups.<sup>4</sup> In their multivariate analyses, there was no association between higher UDI-6 or IIQ-7 scores and a history of sexual trauma. Bradley et al examined UDI and IIQ-7 scores in female veterans who recently returned from military deployment, and showed that those with a history of sexual assault reported higher UDI and IIQ-7 scores after adjusting for other mental health symptoms such as post-traumatic stress disorder (PTSD), anxiety, and depression.<sup>2</sup> One potential weakness of both studies is that they both looked exclusively at women veterans which may not represent the broader population. To clarify the issue, we recruited clinic patients in a non-veteran setting, and used a broader set of contemporary instruments (ICIQ-UI, ICIQ-OAB, OAB-q, USS),<sup>11-13,15</sup> in addition to using UDI-6 and IIQ-7. Overall, we did not observe any correlation between childhood trauma and worse OAB/UI symptoms using any of these validated instruments.

The positive correlations between childhood traumatic burden and more severe bladder pain, more severe non-urolologic pain, higher anxiety, higher somatic symptom burden, and higher psychological stress are intriguing. Although the presence of bladder/pelvic pain in patients who had a history of sexual trauma might not be surprising, we also observed more widespread pain symptoms and somatic symptoms outside the genitourinary tract among traumatized subjects. We suspect this might be a reflection of central sensitization, dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis and descending pain modulation, psychosomatic pain later in life, or other psychological and behavioral stressors that potentiate the effects of childhood trauma.<sup>21-23</sup> Corticotropin releasing factor (CRF) may provide a link between increased detrusor activities and childhood abuse.<sup>3</sup> The age of one's trauma seems to be relevant; trauma occurring at critical times for brain, endocrinological, and immunological development may have long-lasting effects on the body's ability to stave off or adjust to illness long after the trauma has ended.<sup>24</sup> Furthermore, childhood trauma can lead to enduring changes in vulnerability to mood and affective insults as well. While trauma later in life is certainly disruptive, it is likely not to the same degree as sexual or violent trauma occurring in pivotal windows of human development. Much remains to be learned about how psychological stressors, including those from childhood, might modulate the biology of OAB. This is an important area of research, since addressing the receptor mechanism at the level of the bladder alone (e.g., with medications) might be expected to fail in OAB patients who have significant psychosocial drivers of their symptoms.

The prevalence of sexual abuse (29.4%) reported here was higher than those reported in the BACH OAB group (21.6%),<sup>3</sup> perhaps because our cohort was selected based for their OAB symptoms bothersome enough to seek care, while the BACH cohort was identified using urgency data on the BACH surveys.

The observation that about 30% of OAB patients had a history of sexual trauma (quite a high percentage), and that such history was associated with more severe bladder/pelvic pain have clinical implications. First, in patients who have such a history, the clinician should be more sensitive when performing a pelvic examination. Procedures that may seem innocuous, such as catheterization of the urethra (to measure post-void residual volume, to obtain a catheterized specimen for urine culture, or to fill the bladder to test for supine cough test) might be very traumatic and poorly tolerated to OAB patients with such a history. Excessive pain during a pelvic exam or office procedure may raise a red flag about possible trauma history. Alternative strategy such as a bladder scanner should be used instead. Invasive office procedures (e.g. cystoscopy, urodynamics) should be used judiciously. Cystoscopy and urodynamics are usually not needed in the initial workup of the uncomplicated OAB patient.<sup>8</sup> In patients with a history of sexual trauma, before performing a pelvic exam or procedure, the clinician should first ask if the patient is psychologically ready for it. Depending on where they are in the recovery process, some patients may be able to tolerate it with assurance. Others will need time to establish rapport and trust with their clinicians. In clinical practice, when and how does one asks about sexual trauma is an important consideration. The clinician might inquire about sexual abuse if he/she has already established rapport with the patient, feels that the discussion may improve or alter patient care, and has access to psychological resources that would benefit the patient.

Patients with sexual trauma may also have concomitant myofascial pelvic floor disorders (e.g. hypertonic pelvic floor, trigger points) that can contribute to the pain symptoms. Such differential diagnosis should be considered, and the patient should be referred accordingly. It is also possible that some IC/BPS patients may be mislabeled as having OAB. Some IC/BPS patients may present with predominantly urgency/frequency symptoms,<sup>25</sup> or characterize their symptoms in terms of urge, urgency, bladder pressure, or discomfort instead of “pain”. It has also been shown that IC/BPS and OAB can share some overlapping symptoms (e.g. urgency, frequency).<sup>20</sup>

There are potential weaknesses of the study. While the numbers of participants were comparable to other clinic-based studies along similar topics,<sup>4,6</sup> it was considerably smaller than other epidemiological studies which have higher power to detect an association.<sup>2,3,5</sup> Our study may be underpowered; additional studies with larger numbers of participants are needed. Like other published studies, the assessment of traumatic events were based on self-reported recall of the experience on a questionnaire, instead of through a structured interview or correlating the exposure to chart reviews, thus it is possible the experience was under- or over-reported.

## CONCLUSIONS

About 30% of OAB patients reported childhood sexual trauma. These patients report more pain symptoms, poorer mood, and greater somatic burden. These data illustrated the life-long impact of childhood psychosocial stressors in the adult patient suffering from OAB.

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## ABBREVIATIONS

<b>IC/BPS</b>	interstitial cystitis/bladder pain syndrome
<b>ICIQ</b>	international consultation on incontinence
<b>IIQ-7</b>	incontinence impact questionnaire short form
<b>LUTS</b>	lower urinary tract symptoms
<b>OAB</b>	overactive bladder
<b>UDI-6</b>	urogenital distress inventory short form
<b>UI</b>	urinary incontinence

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Table 1

## Clinical characteristics

	OAB	Controls
No. of subjects	51	30
Age (mean $\pm$ SD)	53.4 $\pm$ 11.9	54.2 $\pm$ 12.3
Sex (% females)	73%	57%
Age of diagnosis of OAB (mean $\pm$ SD)	47.5 $\pm$ 15.2	NA
% with OAB symptoms less than one year? (recent onset cases)	24%	NA
Comorbidities:		
Hypertension	37%	33%
Diabetes	8%	3%
Stroke, TIA	8%	7%
Angina, MI	0%	0%
Depression	32%	17%
Anxiety	20%	7%
Symptom indexes: (mean $\pm$ SD)		
<b>ICIQ-UI</b> (urinary incontinence, 0-21)	12.0 $\pm$ 4.9	1.4 $\pm$ 2.0
<b>ICIQ-OAB</b> (overactive bladder, 0-16)	9.3 $\pm$ 2.6	2.0 $\pm$ 1.5
<b>OAB-q</b> symptom bother subscale (6-36)	19.1 $\pm$ 6.6	2.2 $\pm$ 2.8
<b>OAB-q</b> quality of life subscale (13-78)	29.7 $\pm$ 16.9	2.0 $\pm$ 3.0
<b>UDI-6</b> (urogenital distress inventory, 0-24)	12.6 $\pm$ 5.6	0.9 $\pm$ 1.4

	OAB	Controls
<b>IIQ-7</b> (incontinence impact questionnaire, 0-28)	8.8 ± 8.2	0.1 ± 0.4
<b>USS</b> (urgency severity scale, 0-3)	2.1 ± 0.7	0.5 ± 0.6
Numeric rating scale of <b>urgency</b> (0-10)	6.1 ± 2.6	0.4 ± 0.6
Numeric rating scale of <b>frequency</b> (0-10)	6.4 ± 2.6	0.6 ± 0.9

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Table 2

Comparison of childhood and recent traumatic events between OAB and controls

	Ratings of the Degree of Trauma (Average Response, mean $\pm$ SEM)			Rate Response by Group (% Yes)		
	OAB (n=51)	Controls (n=30)	Multivariate logistic regression model ( <i>p</i> -values)	OAB (n=51)	Controls (n=30)	Multivariate linear regression model ( <i>p</i> -values)
<b>Childhood Traumatic Events Scale (prior to the age of 17)</b>						
<b>Death</b> of a very close friend or family members	2.90 $\pm$ 0.43	2.83 $\pm$ 0.49	0.957	51.0%	63.3%	0.242
Major <b>upheaval</b> between your parents (e.g., divorce, separation)	1.63 $\pm$ 0.37	1.10 $\pm$ 0.36	0.296	33.3%	33.3%	0.869
Traumatic <b>sexual</b> experience (e.g., raped, molested)	1.71 $\pm$ 0.39	0.40 $\pm$ 0.28	0.050*	29.4%	6.7%	0.041*
Victim of <b>violence</b> (e.g., child abuse, mugged or assaulted other than sexual)	1.53 $\pm$ 0.39	0.37 $\pm$ 0.26	0.063	23.5%	6.7%	0.099
Been extremely <b>ill or Injuries</b>	1.40 $\pm$ 0.35	1.07 $\pm$ 0.39	0.586	27.4%	23.3%	0.679
<b>Other</b> major upheaval that you think may have shaped your life or personality significantly	2.06 $\pm$ 0.41	0.83 $\pm$ 0.40	0.057	35.5%	13.3%	0.045*
<b>Childhood traumatic burden</b> (sum of the above ratings)	11.00 $\pm$ 1.51	6.60 $\pm$ 1.36	0.075			
<b>Recent Traumatic Events Scale (within the past 3 years)</b>						
<b>Death</b> of a very close friend or family members	3.18 $\pm$ 0.39	2.35 $\pm$ 0.49	0.281	62.7%	55.1%	0.568
Major <b>upheaval</b> between you and your spouse (e.g., divorce, separation)	0.66 $\pm$ 0.25	0.14 $\pm$ 0.14	0.088	15.7%	3.4%	0.098
Traumatic <b>sexual</b> experience (e.g., raped, molested)	0.35 $\pm$ 0.21	0 $\pm$ 0	0.261	5.9%	0.0%	-
Victim of <b>violence</b> (other than sexual)	0.98 $\pm$ 0.33	0.23 $\pm$ 0.23	0.127	15.7%	3.3%	0.131
Been extremely <b>ill or Injuries</b>	1.39 $\pm$ 0.33	0.80 $\pm$ 0.39	0.265	29.4%	13.3%	0.127
Major change in the kind of <b>work</b> you do (e.g., a new job, promotion, demotion,	2.02 $\pm$ 0.36	1.66 $\pm$ 0.48	0.633	49.0%	37.9%	0.467

	Ratings of the Degree of Trauma (Average Response, mean $\pm$ SEM)		Rate Response by Group (% Yes)	
lateral change)				
<b>Other</b> major upheaval that you think may have shaped your life or personality significantly	1.63 $\pm$ 0.38	1.03 $\pm$ 0.42	29.4%	20.0%
<b>Recent traumatic burden</b> (sum of the above ratings)	9.92 $\pm$ 1.28	6.32 $\pm$ 1.55		0.487

\* ( $p < 0.05$ )

**Table 3**  
Spearman's correlation between childhood traumatic burden and symptoms in OAB patients

	OAB patients only: Correlation to childhood traumatic ratings		Comments on the questionnaire, scoring range
	Spearman's coefficient (rho)	p-value	
<b>OAB/UI symptom measures</b>			
ICIQ-UI	0.080	0.58	4-item urinary incontinence, 0-21
ICIQ-OAB	0.083	0.57	4 item OAB symptoms, 0-16
OAB-q symptom bother	0.016	0.92	6-item on OAB-q short form, 6-36
UDI-6	0.087	0.55	6-item UDI short form, 0-24
USS	0.058	0.69	0-3 point urgency severity scale
Ratings of urgency	0.048	0.74	0-10 numeric ratings of urgency
Ratings of frequency	-0.058	0.69	0-10 numeric ratings of frequency
<b>OAB/UI quality of life measures</b>			
OAB-q quality of life	-0.077	0.62	13-item on OAB-q short form, 13-78
IIQ-7	0.12	0.41	7-item IIQ short form, 0-28
<b>Pain symptoms</b>			
Ratings of bladder pain	0.39	0.005*	0-10 numeric ratings of pain
Ratings of non-urolologic pain	0.34	0.017*	0-10 numeric ratings of pain
<b>Psychosocial factors</b>			
Ratings of mood	0.45	0.001*	0-10 ratings, 0 = extremely good mood, 10 = extremely bad mood
Anxiety (HADS-A)	0.31	0.029*	7-item on HADS, 0-21
Depression (HADS-D)	0.27	0.056	7-item on HADS, 0-21
Physical symptom burden (PSPS-Q)	0.52	<0.001*	59 item checklist of bothersome physical symptoms, 0-59

	OAB patients only: Correlation to childhood traumatic ratings		Comments on the questionnaire, scoring range
	Spearman's coefficient (rho)	p-value	
Sleep (PROMIS T-Score)	-0.054	0.71	Short form 8b, T scores 28.9-76.5
Fatigue (PROMIS T-Score)	0.13	0.37	Short form 7a, T scores 29.4-83.2
Psychological stress (PSS)	0.30	0.039*	10 item perceived stress scale, 0-40

\* ( $p < 0.05$ )

**Table 4**  
Spearman's correlation between childhood traumatic burden and individual urinary symptom

Urinary symptom	OAB/UI symptom measures				Other instruments
	ICIQ-OAB	OAB-q symptom bother	UDI-6		
Urinary incontinence	ns rho=0.086; $p=0.55$ (question 6)	ns rho=0.047; $p=0.74$ (question 3) ns rho=0.089; $p=0.54$ (question 6)	ns rho=0.12; $p=0.42$ (question 2) ns rho=0.035; $p=0.81$ (question 3) ns rho=0.062; $p=0.67$ (question 4)	ICIQ-UI and IIQ-7 only report on UI symptom	
Urgency	ns rho=-0.023; $p=0.87$ (question 5)	ns rho=-0.046; $p=0.75$ (question 1) ns rho=0.002; $p=0.99$ (question 2)	-	USS only report on urgency symptom	
Frequency	ns rho=0.12; $p=0.41$ (question 3)	-	ns rho=-0.071; $p=0.63$ (question 1)	-	
Nocturia	ns rho=-0.011; $p=0.94$ (question 4)	ns rho=-0.043; $p=0.77$ (question 4) ns rho=-0.030; $p=0.84$ (question 5)	-	-	
Difficulty urinating	-	-	ns rho=-0.030; $p=0.86$ (question 5)	-	

\* (ns = not significant,  $p>0.05$ )