

Neurotic personality and lower urinary tract symptoms in day hospital patients diagnosed at pretreatment between 2004 and 2014

Katarzyna Klasa¹, Jerzy A. Sobański¹, Michał Skalski², Tomasz Golabek³,
Agata Świerkosz³, Mikołaj Przydacz³, Edyta Dembińska¹,
Michał Mielimąka¹, Katarzyna Cyranka², Dominika Dudek²,
Piotr L. Chłosta³, Krzysztof Rutkowski¹

¹ Jagiellonian University Medical College, Department of Psychotherapy

² Jagiellonian University Medical College, Department of Psychotherapy,
Clinic of Adult Psychiatry

³ Jagiellonian University Medical College, Department of Urology

Summary

Aim. Evaluation of the association between the occurrence of lower urinary tract symptoms in patients qualified for psychotherapy and the severity and profile of their neurotic personality disorders.

Material and methods. Retrospective analysis of questionnaires included in the medical records of 2,450 patients qualified for psychotherapy in 2004–2014 in terms of correlations between the symptoms of pollakiuria and unconscious urinary incontinence, and the global severity of neurotic symptoms (OWK), global severity of neurotic personality disorders (XKON) and abnormal values of 24 scales of the KON-2006 questionnaire. Correlations in the form of OR coefficients with 95% confidence intervals were estimated using logistic regression analyzes.

Results. Lower urinary tract symptoms are associated with a significantly greater severity of neuroticism, both described by the global severity of symptoms (OWK) as well as by the global neurotic personality disorder index (XKON) and abnormal values of the KON-2006 questionnaire scales. The occurrence of both symptoms was associated with the following scales: 'Negative self-esteem' and 'Envy', the occurrence of pollakiuria – with the scales 'Feeling of being dependent on others', 'Demobilization', 'Conviction of life helplessness' and 'Feeling of lack of influence', the occurrence of unconscious urinary incontinence – with the scales 'Feeling of being alienated' and 'Exaltation' for both genders, and only in men 'Risk avoidance' (low 'Risk tendencies'), 'Conviction of life helplessness', 'Difficulties in interpersonal relations'. Extreme severity of pollakiuria was more strongly associated with many of the mentioned scales, and also slightly differently with other scales, e.g., in men – with the 'Sense of overload' and 'Imagination, fantasizing'.

Conclusions. Neurotic personality traits described by abnormal values of the KON-2006 questionnaire scales are associated with the presence (and also to some extent with the severity) of psychogenic lower urinary tract symptoms. Connections may be bi-directional – in some cases experiencing and self-description of personality traits may be secondary to suffering associated with pollakiuria and incontinence.

Key words: neurotic personality, lower urinary tract symptoms, neurotic disorders

Introduction

Personality traits generally referred to as ‘nervousness’ or ‘shyness’ are an element of even the colloquial image of people complaining of lower urinary tract ailments, especially those associated with urinary incontinence. In urology, much attention is devoted to one of the forms of urinary incontinence, i.e., overactive bladder syndrome (OAB), recognizing in it a significant functional component – in addition to diseases such as interstitial cystitis/bladder pain syndrome (IC/BPS) and chronic prostatitis/chronic pelvic pain syndrome (CPP), with the suggestion that insufficient treatment results may be associated with the omission of related mental and psychological difficulties and disorders [1–4].

The issues of psychological aspects in the population of broadly understood urological patients are raised in the literature both because of concern for the well-being of patients, as well as their relation to the effectiveness of treatment [5–11]. In a recent review of 32 studies on the psychological effects of OAB, attention is drawn to the tendency of patients to develop depressive symptoms, experiencing embarrassment, anxiety, social and sexual limitations, sleep quality and general quality of life disturbances, as well as the impact of OAB on persons close to patients [11]. It is worth citing the recent study on a large group of American veterans ($n = 1,107$), in which the symptoms of overactive bladder were found in 22% of women, while 102 (9.2%) had depressive symptoms, 218 (19.7%) anxiety symptoms, and 188 (17.0%) PTSD symptoms [12].

Symptoms such as diurnal and nocturnal urinary incontinence, but also nocturnal and diurnal pollakiuria, are related to the burden of patients – often perpetuated from childhood – subjective sense of inferiority, real or anticipated ridicule or humiliation in others’ eyes, feelings of inefficiency, social isolation, and avoidance, which definitely contribute to a reduced quality of life [13–17]. An example of the burdening impact of secondary symptoms of OAB on the lives of patients from this group may be the lifestyle change, e.g., diet alternation (limiting liquids) or avoiding moving away from the place of residence or moving only to the place where the toilet is available [3], on the one hand slightly resembling limitations associated with agoraphobia or social phobia [18–20] and, on the other hand, suggesting hyperactivity-overactivity of a person suffering from this disorder.

An important area of difficulty experienced by patients suffering from urological symptoms are problems in the field of sexual functioning and related secondary dysfunctions of the relationship [21–29]. At the same time, sexual traumas often occur in

this group [4, 12, 30], also associated with negative/low self-esteem, guilt, inferiority and secondary sexual dysfunctions. For example, in the mentioned study of American veterans, as many as 287 respondents (25.9%) reported the experience of sexual harassment during their lifetime [12].

Various life events (traumatic, but also not having such a character) play an important role in the etiopathogenesis of neurotic and personality disorders, shaping the psychopathological image of various psychological symptoms, including lower urinary tract symptoms [29, 31–37]. In the population of physically healthy people, which includes patients with psychogenic disorders (and the psychogenic character of lower urinary tract symptoms), ‘pseudourological’ symptoms may cause additional fear of potential manifestation of somatic illness, reduce the sense of control, exacerbate restrictions related to agoraphobia (with or without panic disorder) or social anxiety [38], e.g., by raising the risk of ‘possible’ failure to control urination or feeling urge to urinate.

Although research and clinical observations confirm the existence of links between urological symptoms and the state of mental health, it is noted that there is still little known about the basis of these connections. Leue et al. [1] indicate the possibility of referring to the concept of the bladder-gut-brain axis (BGBA) and suggest that functional disorders are the effect of a strong reaction to difficulties or traumatic events in childhood, resulting in experienced emotional and bodily distress, while, according to the authors, neuroticism or a tendency to negative emotionality may be the risk factor for their occurrence. Such assumptions are confirmed by recent studies on the Polish group of patients with neurotic disorders, in which two types of lower urinary tract symptoms (frequent urination and involuntary urination in men, and increased pol-lakiuria in women) were associated with [29] punishment for masturbation or sexual games as well as discomfort related to masturbation – associated with unintentional urination [28] – reported by women and probably being a consequence of punishment [35]. In an earlier publication, the traumatic influence of violence or pressure during early sexual relations is shown [29] by the link between the symptoms of involuntary urination and ‘rather’ unwanted sexual initiation or the one remembered as rape, one of the risk factors of sexual dysfunction in adulthood [35, 39–42].

Significant coexistence of lower urinary tract symptoms, i.e., those similar to OAB, with anxiety and depressive symptoms (e.g., [8, 11, 43]) allows to assume a relationship with personality traits such as: neuroticism, a tendency to experience negative emotions or timidity. Because in the clinical picture known from psychotherapy ‘pseudourological’ symptoms are often associated with a restriction of freedom of movement (often similar to agoraphobia) and coping ‘outside’ the home or family (they can thus inhibit the separation and individualization processes), it seems very likely that they will be related to the traits of experiencing and personality referring to psychastenicity, dependence, lack of resource, sense of lack of influence, dependence on others, outer containment, and secondarily – to negative self-esteem as well as difficulties in building relationships.

In this work, taking into account the abovementioned deficiencies in the conceptualization of relationships between the mental state (anxiety, neurotic and depressive disorders) and lower urinary tract symptoms, we propose to use the concept of neurotic personality to verify whether and how the personality traits measured using *the Neurotic Personality Questionnaire* KON-2006, developed on the basis of this concept [44–46], are associated with psychogenic lower urinary tract symptoms reported by patients with neurotic and personality disorders in *the Symptom Checklist “O”* (KO “O”) during qualification for psychotherapy in the day hospital for neurotic and behavioral disorders.

The concept of neurotic personality was proposed by Aleksandrowicz et al. as a result of many years of clinical experience and research [44–52]. According to the authors, it includes features/aspects related to the occurrence and persistence of various neurotic disorders. The key postulate of this concept is the one of the basis in the form of dysfunctions other than specific personality disorders, responsible for the presence of neurotic disorders. It is a construct similar to the concept of neuroticism, but it is based on the observations, made by Aleksandrowicz et al., of the distributions of extreme severities of traits (depicted by extreme scale values in different personality questionnaires [45, 46, 51, 52]), which seems similar to Akiskal’s concept of disorder as a conglomerate of non-adaptive personality traits [53].

Aim

The aim of the study was evaluation of relationships between the reported lower urinary tract symptoms and neurotic personality traits described in the KON-2006 in the group of patients qualified for psychotherapy

Material and methods

Medical records of 2,450 patients diagnosed at the Department of Psychotherapy of the University Hospital in Krakow in 2004–014, with diagnoses as in Table 1. During the qualification [54], all patients completed *the Symptom Checklist “O”* (KO “O”) [55], *Neurotic Personality Questionnaire* KON-2006 [44–46] and a structured *Life Inventory* [56]. The data of the subjects were processed in an anonymous way (consent of the Bioethics Committee no. 122.6120.80.2015).

The Symptom Checklist “O” (KO “O”) [55] contains 138 variables, two variables of the KO “O” were used to assess the occurrence of lower urinary tract symptoms (in the full wording: ‘132. The need for frequent urination’ and ‘111. Involuntary urination, e.g., bed wetting’). The instruction specifies the duration of symptoms (7 days before the examination) and gives the scale for the patient’s assessment of the subjective severity of the ‘0-abc’ scale, where ‘0’ means – ‘the symptom was not present at all’, ‘a’ – ‘the symptom was present but only slightly severe’, ‘b’ – ‘the symptom was moderately severe’, ‘c’ – ‘the symptom was very severe’. For

this reason, it is not possible to precisely determine whether the patients' responses described day or night pollakiuria or both, similarly there is no information available whether involuntary urination was accompanied by urge, or rather stress urinary incontinence, or whether it was completely involuntary nocturnal or diurnal urination. Complementing this information would require additional specialist interview. The overall result of the *Symptom Checklist "O"* is calculated as the sum of the ratio of the number of symptoms with a given severity (0, a, b, c) and ranges from 0 to 966 points.

The *Neurotic Personality Questionnaire* measures the severity of 24 distinctive traits related to the occurrence of neurotic disorders (scales), the overall result of the questionnaire is expressed by means of the global severity of disorders coefficient XKON and ranges from 0.0 to 110.4 points. It has been assumed that scores up to 8.0 points are characteristic for healthy people, area within the limits of 8–18 points is a transitional area requiring careful interpretation, whereas results higher than 18 points indicate the personality basis of neurotic disorders [44–46].

Relationships between selected symptoms and abnormal values of KON-2006 scales (determined on the basis of distribution analysis and ROC method, for more information see [44–46]) were performed by means of one-way logistic regression analysis, where ORs and their 95% confidence intervals were estimated using licensed STATISTICA software. Due to the high co-linearity (redundancy, resulting from the interrelation of KON-2006 subscales), multivariate logistic regression analysis was impossible.

The sociodemographic data of the studied group of patients are presented in Table 2.

Results

Table 1. Type of disorders according to ICD-10 and severity of neurotic symptoms and global personality dysfunction in the questionnaire assessment

Specification	Women (n = 1,694)	Men (n = 756)
F44/45 Dissociative or somatoform disorders	9%	11%
F40/F41 Anxiety disorder	37%	35%
F60 Personality disorder	33%	35%
F43 Reaction to severe stress, and adjustment disorders	10%*	7%*
F42 Obsessive-compulsive disorder	3%***	6%***
F48 Neurasthenia	1%***	4%***
F34 Dysthymia	1%	1%
F50 Eating disorders	5%***	0%***
Other	1%	1%

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Global severity of symptoms (OWK) Mean±standard deviation (median)	***366±152 (359)	***329±151 (315)
Global neurotic personality disintegration (XKON) Mean±standard deviation (median)	36±23 (36)	35±24 (34)

Statistically significant differences were marked: * $p < 0.05$; *** $p < 0.001$; OWK – general result of the KO “O”;

XKON –personality disintegration factor measured by the KON-2006.

Table 2. Sociodemographic data

Specification	Women (n = 1,694)	Men (n = 756)
Age in years Mean±standard deviation (median)	29±8 (28)	30±8 (28)
Education		
None/primary	3%	4%
Secondary (including students)	57%	55%
Higher	40%	41%
Employment		
Employed	46%**	52%**
Unemployed	54%**	48%**
including pension	1%*	2%*
students	37%	33%

Statistically significant differences were marked: * $p < 0.05$; ** $p < 0.01$.

The questionnaire values confirming with high probability the presence of a neurotic disorder with neurotic personality traits, were assumed as follows: in the case of the KO “O”: for women 220, for men 181 points, and in the case of the KON-2006 (XKON coefficient) the result higher than 18 points.

Table 3. Symptoms of pollakiuria and urinary incontinence in the studied group

Symptom	Women n = 1,694	Men n = 756	Women HPND n = 1,120	Men HPND n = 495
Pollakiuria – occurrence	**44%	**38%	47%	43%
Pollakiuria – extreme severity	***12%	***6%	**14%	**9%
Urinary incontinence – occurrence	3%	3%	4%	5%
Urinary incontinence – extreme severity	0.5%	0.5%	0.5%	0.8%

Subgroup marked HPND (high probability of neurotic disorders) – OWK coefficient > 220 points for W or > 181 points for M and XKON > 18 points. Statistically significant differences between

men and women were marked: ** $p < 0.01$; *** $p < 0.005$; there were no statistically significant differences between the studied group and the selected HPND group.

In the studied group, approximately 40% of patients, including significantly more women (44%) than men (38%) reported the occurrence and extreme severity of frequent urination 7 days prior to the questionnaire examination (Table 3). There were no gender differences for the symptom of involuntary urination. In the group of patients with the results of questionnaires indicating the high probability of neurotic disorders, the percentage did not differ significantly from the percentage in the studied group and the proportions of percentage rates between women and men in this subgroup were similar.

Results of descriptive statistics and comparison of distributions of OWK, XKON and individual scales of the KON-2006 in subgroups of women and men reporting or not reporting the presence of lower urinary tract symptoms are presented in Table 4, whereas results for extreme severity are presented in Table 5.

Table 4. Personality profiles in the Neurotic Personality Questionnaire KON-2006 and levels of global symptom severity in the KO "O" in patients reporting vs. not reporting lower urinary tract symptoms

Specification	Polakiuria – occurrence				Urinary incontinence – occurrence			
	Women		Men		Women		Men	
	Yes (n = 736)	No (n = 958)	Yes (n = 284)	No (n = 472)	Yes (n = 51)	No (n = 1643)	Yes (n = 25)	No (n = 731)
KON-2006 SCALES:								
1. Feeling of being dependent on others	**9.4±4.5 (10.0)	**8.7±4.8 (9.0)	**8.6±4.5 (8.0)	**7.6±4.6 (8.0)	ns 10.2±4.8 (11.0)	ns 9.0±4.7 (9.0)	**10.6±4.8 (11.0)	**7.9±4.5 (8.0)
2. Asthenia	***10.2±2.9 (11.0)	***9.6±3.2 (11.0)	***10.0±3.4 (11.0)	***9.4±3.5 (11.0)	ns 10.6±2.7 (12.0)	ns 9.9±3.1 (11.0)	*11.2±2.2 (12.0)	*9.6±3.5 (11.0)
3. Negative self-esteem	*6.2±3.6 (6.0)	*5.7±3.6 (5.0)	*5.4±3.5 (5.0)	*4.7±3.5 (4.0)	**7.2±3.2 (7.0)	**5.9±3.6 (6.0)	***7.1±3.8 (6.0)	***4.9±3.5 (4.0)
4. Impulsiveness	*8.2±4.1 (8.0)	*7.7±4.0 (8.0)	***7.6±4.1 (7.0)	***6.5±3.9 (6.0)	ns 8.5±4.2 (9.0)	ns 7.9±4.1 (8.0)	***9.5±4.4 (10.0)	***6.8±4.0 (6.0)
5. Difficulties in decision making	*7.6±2.8 (8.0)	*7.3±2.8 (8.0)	ns 7.2±2.8 (8.0)	ns 7.0±2.9 (7.0)	ns 7.9±2.7 (9.0)	ns 7.4±2.8 (8.0)	ns 7.6±2.1 (8.0)	ns 7.1±2.9 (8.0)
6. Feeling of alienation	***6.1±4.0 (6.0)	***5.5±3.9 (5.0)	ns 6.1±3.9 (6.0)	ns 5.7±3.8 (5.0)	***7.4±4.0 (7.0)	***5.7±3.9 (5.0)	***8.4±3.7 (9.0)	***5.7±3.8 (5.0)
7. Demobilization	***12.2±4.5 (13.0)	***11.4±4.6 (12.0)	***11.6±4.7 (12.0)	***10.6±4.6 (11.0)	ns 12.3±4.3 (12.0)	ns 11.7±4.6 (12.0)	*13.3±4.3 (14.0)	*10.9±4.6 (11.0)
8. Risk-taking tendency	ns 3.0±2.4 (3.0)	ns 3.0±2.5 (2.0)	ns 3.6±2.7 (3.0)	ns 3.6±2.8 (3.0)	ns 3.6±2.7 (3.0)	ns 3.0±2.4 (2.0)	ns 4.2±2.8 (3.0)	ns 3.6±2.8 (3.0)
9. Difficulties in emotional relations	ns 6.3±2.8 (6.0)	ns 6.2±2.7 (6.0)	ns 7.1±2.7 (7.0)	ns 7.1±2.7 (7.0)	ns 5.9±2.5 (6.0)	ns 6.3±2.7 (6.0)	ns 7.4±2.2 (7.0)	ns 7.1±2.7 (7.0)
10. Lack of vitality	***11.9±3.7 (12.0)	***11.2±3.6 (11.0)	*11.7±3.6 (12.0)	*10.9±3.8 (11.0)	ns 12.1±3.8 (13.0)	ns 11.5±3.7 (12.0)	*13.0±3.2 (14.0)	*11.2±3.8 (11.0)
11. Feeling of life helplessness	**9.2±3.9 (9.0)	***8.6±4.0 (9.0)	***8.7±4.3 (9.0)	***7.7±4.2 (8.0)	ns 9.7±3.9 (10.0)	ns 8.8±3.9 (9.0)	**10.3±3.6 (12.0)	**8.0±4.2 (8.0)
12. Feeling of lack of influence	***5.3±3.2 (5.0)	***4.7±3.1 (4.0)	***5.2±3.5 (5.0)	***4.1±3.2 (3.0)	***6.4±3.4 (6.0)	***4.9±3.2 (5.0)	***6.8±4.1 (8.0)	***4.4±3.3 (4.0)

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13. Lack of inner locus of control	***9.3±4.1 (9.0)	***8.6±4.3 (9.0)	*8.5±4.6 (8.0)	*7.7±4.4 (7.0)	ns 9.9±4.3 (10.0)	ns 8.9±4.2 (9.0)	***10.7±4.6 (11.0)	***7.9±4.4 (8.0)
14. Imagination, fantasizing	ns 6.5±2.9 (6.0)	ns 6.3±3.0 (6.0)	ns 6.7±3.0 (7.0)	ns 6.5±3.0 (6.0)	*7.4±3.0 (7.0)	*6.4±2.9 (6.0)	ns 7.5±3.2 (8.0)	ns 6.5±3.0 (6.0)
15. Feeling of guilt	***7.6±2.8 (8.0)	***7.0±2.9 (8.0)	***7.1±3.1 (8.0)	***6.4±3.0 (7.0)	ns 7.9±2.3 (8.0)	ns 7.2±2.9 (8.0)	***8.4±2.6 (10.0)	***6.6±3.0 (7.0)
16. Difficulties in interpersonal relations	*6.2±2.9 (6.0)	*5.9±2.9 (6.0)	ns 6.5±2.8 (7.0)	ns 6.2±2.9 (6.0)	ns 6.9±3.0 (7.0)	ns 6.0±2.9 (6.0)	***7.9±2.5 (8.0)	***6.2±2.9 (6.0)
17. Envy	***4.5±3.0 (4.0)	***3.9±2.9 (3.0)	**4.8±3.1 (4.0)	*4.1±3.0 (3.0)	***6.0±3.2 (6.0)	***4.1±2.9 (4.0)	***6.2±3.0 (6.0)	***4.3±3.1 (4.0)
18. Narcissistic attitude	ns 2.8±2.5 (2.0)	ns 2.7±2.5 (2.0)	ns 3.8±2.9 (3.0)	ns 3.5±2.9 (3.0)	**3.8±3.1 (3.0)	**2.7±2.5 (2.0)	**5.0±2.9 (5.0)	**3.6±2.9 (3.0)
19. Insecurity	***6.0±3.1 (6.0)	***5.4±3.1 (5.0)	***5.8±3.2 (5.0)	***4.8±2.9 (4.0)	***7.5±3.1 (7.0)	***5.6±3.1 (5.0)	**7.2±3.7 (7.0)	**5.1±3.0 (5.0)
20. Exaltation	***9.7±2.4 (10.0)	***9.1±2.4 (9.0)	***8.2±2.8 (8.0)	***7.4±2.9 (8.0)	***10.5±2.1 (11.0)	***9.3±2.4 (10.0)	***9.6±2.5 (10.0)	***7.7±2.9 (8.0)
21. Irrationality	***4.7±2.2 (5.0)	***4.4±2.1 (4.0)	***4.2±2.3 (4.0)	***3.6±2.2 (4.0)	***5.7±2.0 (6.0)	***4.5±2.1 (5.0)	ns 4.8±2.7 (5.0)	ns 3.8±2.2 (4.0)
22. Meticulousness	*4.1±2.0 (4.0)	*3.9±1.9 (4.0)	***4.5±2.1 (4.0)	***4.0±2.2 (4.0)	*4.6±2.0 (5.0)	*4.0±2.0 (4.0)	ns 4.9±1.9 (6.0)	ns 4.2±2.2 (4.0)
23. Pondering	*8.0±1.8 (8.0)	*7.8±1.9 (8.0)	***7.7±2.1 (8.0)	***7.2±2.2 (8.0)	ns 8.3±1.7 (9.0)	ns 7.9±1.9 (8.0)	ns 8.0±2.1 (8.0)	ns 7.4±2.2 (8.0)
24. Feeling of overload	*5.1±2.0 (5.0)	*4.9±2.0 (5.0)	ns 4.9±2.0 (5.0)	ns 4.8±2.1 (5.0)	ns 5.3±1.9 (6.0)	ns 5.0±2.0 (5.0)	ns 5.3±2.0 (5.0)	ns 4.9±2.1 (5.0)
XIKON coefficient	***38.8±22.9 (38.5)	***34.4±22.6 (34.0)	***39.4±24.1 (40.0)	***32.7±22.9 (30.6)	***46.5±23.5 (48.0)	***36.0±22.8 (36.0)	***50.7±22.3 (51.3)	***34.7±23.5 (34.0)
OWK coefficient	***422±151 (420)	***322±137 (318)	***398±154 (388)	***288±134 (279)	***497±143 (499)	***361±150 (355)	***511±201 (497)	***323±145 (311)

The table shows the mean±standard deviation, median in brackets. Significance of differences was marked: * p < 0.05; ** p < 0.01; *** p < 0.005.

Table 4 shows that in women statistically significantly higher values in almost all scales of the KON-2006 (except of four: 8. Risk-taking tendency; 9. Difficulties in emotional relations; 14. Imagination, fantasizing; and 18. Narcissistic attitude) were found in the group reporting pollakiuria. In the group of men, four other scales did not show differences in distribution of values depending on the occurrence of pollakiuria (5. Difficulties in making decisions; 6. Feeling of alienation; 16. Difficulties in interpersonal relations; and 24. Feeling of overload). The global severity of symptoms (OWK) and the global neurotic personality disintegration (XKON) were also significantly higher in the groups of men and women reporting pollakiuria.

In the case of the occurrence of urinary incontinence, significantly higher values of the following scales were found for both women and men: 3. Negative self-esteem; 4. Impulsiveness; 6. Feeling of alienation; 12. Feeling of lack of influence; 17. Envy; 18. Narcissistic attitude; 19. Insecurity; 20. Exaltation, and of the global neurotic disintegration coefficient (XKON) and the global severity of symptoms (OWK).

In the case of the occurrence of urinary incontinence, statistically significant differences were not found in the group of women only in relation to the scales: 1. Feeling of being dependent on others; 2. Asthenia; 4. Impulsiveness; 7. Demobilization; 10. Lack of vitality; 11. Feeling of life helplessness; 13. Lack of inner locus of control; 15. Feeling of guilt; and 16. Difficulties in interpersonal relations. Only in the group of men the distributions did not differ in the case of the following scales: 14. Imagination, fantasizing; 21 Irrationality; and 22. Meticulousness. Neither in the group of men nor in the group of women there were significant differences for the scales: 5. Difficulties in decision making; 8. Risk-taking tendency; 9. Difficulties in emotional relations; 23. Pondering; 24. Feeling of overload.

Table 5 shows that in groups of women and men reporting extreme severity of the symptom of pollakiuria, both the global severity of symptoms (OWK) and the global severity of neurotic personality disorders (XKON) as well as the vast majority of the KON-2006 scales have significantly higher values than in groups not reporting this symptom.

Table 5. Personality profiles in the Neurotic Personality Questionnaire KON-2006 and levels of global symptom severity in the KO "O" in patients reporting vs. not reporting extremely severe lower urinary tract symptoms

Specification	Extremely severe pollakiuria				Extremely severe urinary incontinence			
	Women		Men		Women		Men	
KON-2006 SCALES:	Yes (n = 201)	No (n = 1,493)	Yes (n = 49)	No (n = 707)	Yes (n = 8)	No (n = 1,686)	Yes (n = 4)	No (n = 752)
1. Feeling of being depended on others	9.8±4.3 (11.0)	*8.9±4.7 (9.0)	**9.8±4.7 (10.0)	**7.9±4.5 (8.0)	ns 8.8±3.9 (9.5)	ns 9.0±4.7 (9.0)	ns 11.3±4.7 (10.5)	ns 8.0±4.6 (8.0)
2. Asthenia	***10.9±2.4 (12.0)	***9.6±3.1 (11.0)	***11.0±2.8 (12.0)	***9.5±3.5 (11.0)	ns 9.3±3.6 (10.0)	ns 9.9±3.1 (11.0)	ns 11.3±0.5 (11.0)	ns 9.6±3.5 (11.0)
3. Negative self-esteem	***7.0±3.6 (7.0)	***5.8±3.6 (6.0)	**6.3±3.5 (6.0)	**4.9±3.5 (4.0)	ns 7.0±3.9 (8.0)	ns 5.9±3.6 (6.0)	ns 7.8±4.4 (8.0)	ns 5.0±3.5 (5.0)
4. Impulsiveness	***9.0±4.1 (10.0)	***7.8±4.0 (8.0)	***9.2±4.4 (10.0)	***6.8±3.9 (6.0)	ns 8.5±5.1 (9.0)	ns 7.9±4.0 (8.0)	*11.5±1.3 (11.5)	*6.9±4.0 (7.0)
5. Difficulties in decision making	ns 7.5±2.8 (8.0)	ns 7.4±2.8 (8.0)	ns 7.5±2.3 (8.0)	ns 7.1±2.9 (8.0)	*4.9±2.8 (4.0)	*7.4±2.8 (8.0)	ns 8.3±2.2 (8.0)	ns 7.1±2.9 (8.0)
6. Feeling of alienation	***6.9±4.0 (7.0)	***5.6±3.9 (5.0)	***7.6±4.0 (8.0)	***5.7±3.8 (5.0)	ns 6.4±4.8 (6.0)	ns 5.8±3.9 (5.0)	ns 8.0±3.6 (8.5)	ns 5.9±3.9 (5.0)
7. Demobilization	***13.2±4.3 (13.0)	***11.6±4.6 (12.0)	***13.2±4.2 (14.0)	***10.8±4.6 (11.0)	ns 9.6±4.1 (9.0)	ns 11.8±4.6 (12.0)	ns 15.0±4.7 (15.5)	ns 10.9±4.6 (11.0)
8. Risk-taking Tendency	ns 3.0±2.3 (3.0)	ns 3.0±2.4 (2.0)	ns 3.9±3.1 (3.0)	ns 3.6±2.8 (3.0)	* 5.6±3.2 (5.0)	* 3.0±2.4 (2.0)	ns 3.8±2.2 (3.0)	ns 3.6±2.8 (3.0)
9. Difficulties in emotional relations	ns 6.3±2.6 (6.0)	ns 6.2±2.8 (6.0)	ns 7.5±2.3 (8.0)	ns 7.1±2.7 (7.0)	* 3.9±2.0 (4.0)	* 6.3±2.7 (6.0)	ns 8.8±2.6 (9.5)	ns 7.1±2.7 (7.0)
10. Lack of vitality	***12.3±3.6 (12.0)	***11.4±3.7 (12.0)	***12.6±3.5 (13.0)	***11.1±3.8 (11.0)	ns 10.1±3.3 (10.0)	ns 11.5±3.7 (12.0)	ns 12.0±2.2 (11.5)	ns 11.2±3.8 (11.0)
11. Feeling of life helplessness	***9.6±3.6 (10.0)	***8.0±4.0 (9.0)	***9.7±4.2 (11.0)	***8.0±4.2 (8.0)	ns 7.5±4.2 (7.0)	ns 8.9±3.9 (9.0)	ns 11.5±1.7 (11.5)	ns 8.1±4.2 (8.0)
12. Feeling of lack of influence	***5.6±3.2 (5.0)	***4.9±3.2 (5.0)	***6.6±3.9 (6.0)	***4.4±3.2 (4.0)	ns 5.4±2.6 (6.0)	ns 4.9±3.2 (5.0)	ns 6.3±6.1 (6.5)	ns 4.5±3.3 (4.0)

table continued on the next page

13. Lack of inner locus of control	*9.5±3.9 (10.0)	*8.8±4.3 (9.0)	***10.2±4.2 (11.0)	***7.8±4.5 (7.0)	ns 7.4±3.0 (9.0)	ns 9.9±4.2 (9.0)	ns 12.3±4.4 (12.0)	ns 8.0±4.6 (8.0)
14. Imagination, fantasizing	ns 6.7±2.8 (7.0)	ns 6.4±2.9 (6.0)	***7.8±2.3 (8.0)	***6.5±3.1 (6.0)	ns 6.5±3.9 (6.0)	ns 6.4±2.9 (6.0)	ns 7.8±2.5 (7.5)	ns 6.5±3.0 (7.0)
15. Feeling of guilt	***7.9±2.6 (9.0)	***7.2±2.9 (8.0)	**7.7±2.9 (8.0)	**6.6±3.0 (7.0)	ns 6.4±2.4 (6.0)	ns 7.3±2.9 (8.0)	ns 8.8±3.2 (10.0)	ns 6.6±3.0 (7.0)
16. Difficulties in interpersonal relations	***6.7±2.9 (7.0)	***6.0±2.9 (6.0)	*7.3±2.9 (8.0)	*6.2±2.8 (6.0)	ns 5.0±3.7 (4.0)	ns 6.1±2.9 (6.0)	*9.0±0.8 (9.0)	*6.3±2.9 (6.0)
17. Envy	***5.3±3.2 (5.0)	***4.1±2.9 (4.0)	***5.9±3.4 (6.0)	***4.2±3.0 (4.0)	ns 4.4±2.6 (4.0)	ns 4.2±3.0 (4.0)	ns 6.5±3.5 (6.5)	ns 4.3±3.1 (5.0)
18. Narcissistic attitude	** 3.3±2.9 (3.0)	** 2.7±2.5 (2.0)	***5.1±3.3 (5.0)	***3.5±2.9 (3.0)	ns 3.0±2.6 (2.0)	ns 2.7±2.5 (2.0)	ns 5.0±1.8 (5.0)	ns 3.6±2.9 (3.0)
19. Insecurity	***6.7±3.3 (7.0)	***5.5±3.1 (5.0)	***7.0±3.8 (7.0)	***5.1±3.0 (5.0)	*7.8±2.7 (8.0)	*5.7±3.1 (5.0)	ns 6.5±4.4 (5.5)	ns 5.2±3.1 (5.0)
20. Exaltation	***10.1±2.3 (11.0)	***9.2±2.4 (10.0)	***8.9±3.2 (10.0)	***7.7±2.9 (8.0)	ns 9.9±2.5 (10.0)	ns 9.3±2.4 (10.0)	ns 9.3±3.9 (10.0)	ns 7.7±2.9 (8.0)
21. Irrationality	ns 4.6±2.3 (5.0)	ns 4.5±2.1 (5.0)	ns 4.4±2.4 (5.0)	ns 3.8±2.2 (4.0)	***6.8±2.0 (7.0)	***4.5±2.1 (5.0)	ns 5.8±2.2 (6.0)	ns 3.8±2.3 (4.0)
22. Meticulousness	*4.3±1.9 (4.0)	*4.0±2.0 (4.0)	ns 4.5±2.2 (4.0)	ns 4.2±2.1 (4.0)	ns 3.4±2.2 (4.0)	ns 4.0±1.9 (4.0)	ns 4.5±2.1 (4.5)	ns 4.2±2.2 (4.0)
23. Pondering	*8.2±1.7 (9.0)	*7.9±1.9 (8.0)	*7.9±2.2 (8.0)	*7.4±2.2 (8.0)	ns 7.0±2.1 (7.0)	ns 7.9±1.9 (8.0)	ns 7.8±1.3 (8.0)	ns 7.4±2.2 (8.0)
24. Feeling of overload	ns 5.2±1.9 (5.0)	ns 4.9±2.0 (5.0)	**5.6±1.5 (5.0)	**4.8±2.1 (5.0)	ns 4.6±1.6 (5.0)	ns 5.0±2.0 (5.0)	ns 5.3±2.8 (5.5)	ns 4.9±2.1 (5.0)
XKON coefficient	***43.0±23.3 (43.7)	***35.4±22.6 (35.3)	**49.9±23.8 (52.0)	***34.2±23.2 (33.6)	ns 31.3±23.1 (25.1)	ns 36.3±22.9 (36.0)	ns 53.7±17.8 (52.5)	ns 35.1±23.6 (34.0)
OWK coefficient	***480±148 (476)	***350±146 (345)	***500±164 (508)	***317±143 (305)	**510±122 (530)	**365±152 (358)	ns 466±243 (389)	ns 329±150 (340)

The table shows the mean±standard deviation, median in brackets. Significance of differences was marked: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$

A one-way logistic regression analysis of co-occurrence of the values of the KON-2006 scales considered pathological with the presence of pollakiuria and urinary incontinence (Tab. 6) and then with the presence of these symptoms with extreme severity was carried out (answer 'c') (Table 7) separately for groups of women and men, in the entire group and then in subgroups with the questionnaire results indicating high probability of presence of neurotic disorder.

Table 6. Results of one-way logistic regression analysis in women and men – the occurrence of symptoms

SYMPTOMS:	132. Pollakiuria		111. Urinary incontinence	
	Women	Men	Women	Men
1. Feeling of being depended on others	***1.44 (1.16; 1.80)	***2.02 (1.25; 3.26)	ns 1.38 (0.70; 2.71)	ns 1.82 (0.42; 7.88)
2. Asthenia	***1.42 (1.11; 1.81)	ns 1.45 (0.95; 2.23)	ns 1.70 (0.76; 3.80)	Uncountable
3. Negative self-esteem	*1.30 (1.02; 1.66)	*1.43 (1.03; 1.98)	*3.10 (1.11; 8.67)	3.22 (0.95; 10.89)
4. Impulsiveness	ns 1.12 (0.89; 1.41)	*1.50 (1.09; 2.07)	ns 0.93 (0.49; 1.76)	ns 2.70 (0.91; 7.95)
5. Difficulties in decision making	ns 1.11 (0.88; 1.38)	ns 1.07 (0.79; 1.45)	ns 1.12 (0.56; 2.14)	ns 1.02 (0.41; 2.53)
6. Feeling of alienation	ns 1.24 (0.99; 1.55)	ns 1.28 (0.91; 1.81)	*2.29 (1.02; 5.12)	*8.49 (1.14; 63.37)
7. Demobilization	***1.44 (1.12; 1.83)	*1.56 (1.10; 2.23)	ns 1.95 (0.82; 4.61)	ns 3.98 (0.93; 17.09)
8. Risk-taking tendency	ns 0.95 (0.77; 1.17)	ns 0.91 (0.65; 1.27)	ns 0.58 (0.29; 1.13)	*0.23 (0.05; 0.98) *0.18 (0.04; 0.78)
9. Difficulties in emotional relations	ns 0.95 (0.78; 1.15)	ns 1.09 (0.81; 1.46)	ns 0.79 (0.45; 1.39)	ns 1.04 (0.47; 2.31)
10. Lack of vitality	*1.36 (1.07; 1.72)	ns 1.27 (0.90; 1.79)	ns 1.17 (0.58; 2.35)	ns 2.59 (0.77; 8.78)
11. Feeling of life helplessness	***1.53 (1.17; 2.00)	*1.52 (1.06; 2.17)	ns 1.47 (0.62; 3.49)	*7.84 (1.05; 58.56)
12. Feeling of lack of influence	***1.41 (1.13; 1.77)	***1.77 (1.31; 2.39)	ns 2.24 (0.99; 5.01)	ns 2.25 (0.93; 5.46)
13. Lack of inner locus of control	***1.49 (1.19; 1.88)	ns 1.29 (0.92; 1.83)	ns 1.52 (0.73; 3.15)	ns 4.07 (0.95; 17.46)
14. Imagination, fantasizing	ns 1.10 (0.90; 1.33)	ns 1.19 (0.88; 1.62)	ns 1.62 (0.88; 2.98)	ns 1.63 (0.67; 3.97)
15. Feeling of guilt	**1.35 (1.08; 1.68)	ns 1.39 (0.99; 1.96)	ns 1.89 (0.88; 4.07)	ns 2.71 (0.80; 9.15)
16. Difficulties in interpersonal relations	*1.27 (1.05; 1.55)	ns 1.23 (0.91; 1.67)	ns 1.83 (0.99; 3.37)	*3.57 (1.21; 10.53)
17. Envy	***1.54 (1.26; 1.90) ***1.59 (1.16; 2.17)	*1.43 (1.03; 1.98)	***3.33 (1.49; 7.45)	*5.48 (1.28; 20.51)
18. Narcissistic attitude	ns 1.03 (0.77; 1.37)	ns 0.94 (0.66; 1.33)	*1.99 (1.03; 3.86)	ns 1.61 (0.68; 3.81)
19. Insecurity	***1.52 (1.19; 2.01)	***1.72 (1.25; 2.37)	Uncountable	ns 2.12 (0.78; 5.72)
20. Exaltation	***1.53 (1.24; 1.89)	ns 1.36 (0.99; 1.87)	**3.15 (1.41; 7.05)	*3.67 (1.09; 12.42)
21. Irrationality	ns 1.21 (0.98; 1.49)	*1.42 (1.05; 1.91) *1.54 (1.07; 2.21)	**3.07 (1.37; 6.86) *3.29 (1.28; 8.43)	ns 1.72 (0.77; 3.82)

table continued on the next page

22. Meticulousness	ns 1.22 (0.98; 1.53)	<u>**1.63 (1.14; 2.33)</u>	ns 2.15 (0.96; 4.81)	ns 1.77 (0.60; 5.22)
23. Pondering	ns 1.12 (0.92; 1.37)	<u>***1.58 (1.17; 2.14)</u>	ns 1.79 (0.93; 3.45)	ns 2.06 (0.85; 5.00)
24. Feeling of overload	ns 1.19 (0.98; 1.45)	ns 1.31 (0.93; 1.85)	ns 1.55 (0.87; 2.71)	ns 1.84 (0.62; 5.45)

Statistical significance: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$; ns – not statistically significant.

Results of subanalysis (underlined) of a subgroup of patients with a high probability of neurotic disorders were added.

As it results from Table 6, in the group of women, statistically significant relationships were found between the occurrence of pollakiuria symptom and 13 scales of the KON-2006, however, the OR coefficients were relatively low (1.27–1.54), the highest for scales: 17. Envy (OR = 1.54, in the selected group OR = 1.59); 11. Feeling of life helplessness (OR = 1.53); 19. Insecurity (OR = 1.52) and 20. Exaltation (OR = 1.53).

In the group of men, pollakiuria was significantly associated with 11 scales, with the exception of the scale 1. Feeling of being depended on others (OR = 2.02), the OR coefficients were quite low (OR 1.43–1.77), the highest for the scales: 12. Feeling of lack of influence (OR = 1.77) and 19. Insecurity (OR = 1.72). In addition, for the scale 21. Irrationality, the OR coefficient was 1.42, and in the selected group 1.54.

Common scales in the group of women and men in relation to the occurrence of pollakiuria were: 1. Feeling of being depended on others; 3. Negative self-esteem; 7. Demobilization; 11. Feeling of life helplessness; 12. Feeling of lack of influence; 17. Envy, and 19. Insecurity.

In the case of urinary incontinence, in the group of women statistically significant relationships were found for a smaller number of scales than in the case of pollakiuria symptom, however, they were stronger: 17. Envy (OR = 3.33); 20. Exaltation (OR = 3.15); 3. Negative self-esteem (OR = 3.10); 21. Irrationality (OR = 3.07; and in the selected group OR = 3.29); 6. Feeling of alienation (OR = 2.29), and 18. Narcissistic attitude (OR = 1.99).

In the group of men, the relationships with the occurrence of urinary incontinence were even stronger – namely OR coefficients were in the range 3.57–8.49, respectively for the following scales: 6. Feeling of alienation (OR = 8.49); 11. Feeling of life helplessness (OR = 7.84); 17. Envy (OR = 5.48); 20. Exaltation (OR = 3.67), and 16. Difficulties in interpersonal relations (OR = 3.57). For the scale 8. Risk-taking tendency, the relationship was reversed: OR = 0.23 (in the selected group the value was 0.18).

Three scales were common for women and men in relation to the relationship with the occurrence of urinary incontinence: 6. Feeling of alienation; 17. Envy, and 20. Exaltation. For the scale 3. Negative self-esteem, OR coefficient was insignificant, however, indicated a trend similar to that for the other lower urinary tract symptoms: OR = 3.22 (0.95; 10.89).

The results of subanalysis conducted for a group of patients with a high probability of neurotic disorders (statistically significant coefficients – underlined) indicate additional confirmation of the relationship between the occurrence of pollakiuria in

women and the scale 17. Envy, while in men – the scale 21. Irrationality, as well as the relationship between urinary incontinence symptom and the scale 21. Irrationality, and (reversed relationship) the scale 8. Risk-taking tendency (OR = 0.23 and OR = 0.18).

Table 7. Results of one-way logistic regression analysis in women and men – extreme severity of symptoms

SYMPTOMS:	132. Pollakiuria		111. Urinary incontinence	
	Women	Men	Women	Men
1. Feeling of being depended on others	***1.90 (1.30; 2.78)	ns 3.87 (0.92; 16.23)	ns 1.13 (0.22; 5.84)	Uncountable
2. Asthenia	***2.35 (1.48; 3.71)	ns 2.10 (0.74; 5.95)	ns 0.44 (0.11; 1.86)	Uncountable
3. Negative self-esteem	***2.26 (1.43; 3.59)	*2.29 (1.05; 4.96)	ns 1.81 (0.22; 14.75)	Uncountable
4. Impulsiveness	*1.53 (1.05; 2.23)	ns 2.03 (0.99; 4.14)	ns 0.53 (0.13; 2.22)	Uncountable
5. Difficulties in decision making	ns 0.98 (0.70; 1.38)	ns 1.47 (0.78; 2.79)	**0.11 (0.02; 0.56) *0.13 (0.02; 0.76)	ns 1.73 (0.18; 16.78)
6. Feeling of alienation	*1.61 (1.11; 2.33) *2.03 (1.01; 4.11)	*2.56 (1.07; 6.12)	ns 1.07 (0.20; 5.77)	Uncountable
7. Demobilization	***2.38 (1.49; 3.80)	***5.51 (1.69; 17.98)	ns 0.77 (0.15; 3.81)	Uncountable
8. Risk-taking tendency	ns 0.80 (0.58; 1.11)	ns 1.10 (0.58; 2.08)	Uncountable	Uncountable
9. Difficulties in emotional relations	ns 0.93 (0.69; 1.25)	ns 1.42 (0.79; 2.54)	ns 0.81 (0.02; 1.42)	ns 3.41 (0.35; 33.04)
10. Lack of vitality	*1.57 (1.06; 2.33)	ns 1.83 (0.84; 3.98)	ns 0.85 (0.17; 4.22)	Uncountable
11. Feeling of life helplessness	**1.98 (1.21; 3.24)	ns 1.96 (0.86; 4.45)	ns 0.58 (0.12; 2.89)	Uncountable
12. Feeling of lack of influence	ns 1.41 (0.98; 2.03)	***2.97 (1.43; 5.45)	ns 2.45 (0.30; 19.97)	ns 0.85 (0.12; 6.09)
13. Lack of inner locus of control	*1.49 (1.02; 2.17)	*2.58 (1.08; 6.16)	ns 0.96 (0.03; 30.22)	Uncountable
14. Imagination, fantasizing	ns 1.25 (0.92; 1.70)	***3.42 (1.58; 7.41)	ns 0.66 (0.17; 2.67)	ns 1.88 (0.19; 18.26)
15. Feeling of guilt	*1.51 (1.04; 2.18)	*2.71 (1.13; 6.48)	ns 0.58 (0.14; 2.42)	ns 1.08 (0.11; 10.40)
16. Difficulties in interpersonal relations	***1.66 (1.22; 2.27) *1.68 (1.10; 2.57)	*2.39 (1.20; 4.76)	ns 0.75 (0.19; 3.02)	Uncountable
17. Envy	***1.86 (1.31; 2.62) ***2.28 (1.31; 3.98)	*2.47 (1.14; 5.36)	ns 3.62 (0.44; 29.59)	Uncountable
18. Narcissistic attitude	*1.56 (1.06; 2.29) *1.54 (1.03; 2.31)	*2.07 (1.13; 3.80)	ns 2.11 (0.42; 10.53)	Uncountable
19. Insecurity	*1.64 (1.05; 2.57)	ns 1.86 (0.93; 3.70)	Uncountable	ns 0.52 (0.07; 3.70)
20. Exaltation	***1.64 (1.17; 2.31)	ns 1.23 (0.65; 2.33)	ns 1.47 (0.30; 7.32)	ns 1.46 (0.15; 14.17)

table continued on the next page

21. Irrationality	ns 1.02 (0.69; 1.50)	ns 1.68 (0.94; 3.00)	ns 3.34 (0.41; 27.25)	ns 4.70 (0.49; 35.55)
22. Meticulousness	ns 1.26 (0.89; 1.80)	ns 1.02 (0.52; 2.03)	ns 0.56 (0.13; 2.34)	ns 0.99 (0.17; 5.94)
23. Pondering	ns 1.19 (0.87; 1.62)	***2.87 (1.44; 5.72)	ns 0.32 (0.08; 1.36)	ns 2.36 (0.24; 22.87)
24. Feeling of overload	ns 1.14 (0.85; 1.54)	***5.68 (1.74; 18.50) *5.46 (1.29; 23.02)	ns 0.45 (0.09; 2.25)	ns 1.04 (0.11; 9.76)

Statistical significance: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$; ns – not statistically significant. Results of subanalysis (underlined) of a subgroup of patients with a high probability of neurotic disorders were added..

As shown in Table 7, in the case of the extreme intensity of pollakiuria in the group of women the strongest ($OR > 2.00$) relationships were found with the following scales: 7. Demobilization ($OR = 2.38$); 2. Asthenia ($OR = 2.35$) and 3. Negative self-esteem ($OR = 2.26$). In addition, significant, though weaker, links ($OR 1.49–1.98$) were also found with 12 other KON-2006 scales. It is worth noting statistically significant (and sometimes even stronger than in the entire group) relationships in the selected group with the scales: 6. Feeling of alienation ($OR = 1.61$; and in the selected group $OR = 2.03$); 16. Difficulties in interpersonal relations ($OR = 1.66$; $OR = 1.68$); 17. Envy ($OR = 1.86$; $OR = 2.28$), and 18. Narcissistic attitude ($OR = 1.56$ and $OR = 1.54$).

In the group of men the strongest and statistically significant ($OR > 2.50$) relationships of extremely severe pollakiuria occurred with pathologically elevated scales: 24. Feeling of overload ($OR = 5.68$; for this scale even in the selected group OR was 5.46); 7. Demobilization ($OR = 5.51$); 14. Imagination, fantasizing ($OR = 3.42$); 12. Feeling of lack of influence ($OR = 2.97$); 23. Pondering ($OR = 2.87$); 15. Feeling of guilt ($OR = 2.71$); 13. Lack of inner locus of control ($OR = 2.58$); 6. Feeling of alienation ($OR = 2.56$), moreover for 4 other scales OR was within the range 2.00–2.47. In the case of extreme severity of pollakiuria, significant relationships common for women and men were found with the following scales: 3. Negative self-esteem; 6. Feeling of alienation; 7. Demobilization; 13. Lack of inner locus of control; 15. Feeling of guilt; 16. Difficulties in interpersonal relations; 17. Envy, and 18. Narcissistic attitude.

The results of the subanalysis conducted for a group of patients with a high probability of neurotic disorders (statistically significant coefficients – underlined) indicate additional confirmation of relationship between the extreme intensity of pollakiuria and scales: 17. Envy; 16. Difficulties in interpersonal relations and 18. Narcissistic attitude in women; and in men – 24. Feeling of overload.

For the extremely severe symptom of urinary incontinence (with a small number of such answers), a statistically significant inverse relationship was found – only in the group of women – with the scale: 5. Difficulties in decision making ($OR = 0.11$; in the selected group $OR = 0.13$). No relationships were found in the group of men

Discussion

The results of this study suggest that reporting selected lower urinary tract symptoms is associated with a greater severity of neurotic personality disorder (described by the XKON coefficient, Table 4). At the same time, the occurrence of pollakiuria, both in women and in men, is a symptom less specifically associated with the profile of neurotic personality disorder – in the analysis of raw score distribution, it is associated with significantly higher values of most scales of the KON and, in addition, the abnormal values of KON-2006 scales are associated with this symptom with significant odds ratios (OR) but only at the level of 1.30–1.60. Extreme severity (severity indicated by patients as the answer ‘c’) of the same pollakiuria symptom seems to be a different kind of condition – associated with a much higher probability of occurrence of some disturbed neurotic personality traits (in such a case OR coefficients exceed 2.20 or are even higher). Differences in these associations emerging in such a case in groups of women and men are also interesting.

A much less frequent symptom, which is urinary incontinence, is significantly (as to the occurrence) associated with a smaller number of KON-2006 scales, however, with high odds ratio coefficients (numerous ORs > 3.00). Unfortunately, potentially interesting results of extreme severity of urinary incontinence in the studied group must be interpreted with caution because of the extremely low number of women ($n = 8$) and men ($n = 4$) marking the answer ‘c’, which only allows to distinguish a weak hypothetical relationship between severe urinary incontinence in women and no abnormal values of the scale ‘Difficulties in decision making’ (the scale describes noticing difficulties in making decisions, tendency to hesitate, considering, avoiding showing initiative, therefore, such traits would be practically not present in women at the level considered pathological by the authors of the test). On the basis of such a small group reporting the extreme severity of this symptom, it is difficult to put forward any hypotheses about the nature of this relationship.

The results of analyzes showing the relationship between probably completely psychogenic lower urinary tract symptoms (patients during the qualification for treatment undergo basic medical interview) and the global severity of neurotic disorders as well as the global severity of neurotic personality disorders are in line with our predictions, however, more detailed relationships found between the values of KON-2006 scales and the occurrence of symptoms seem to be more interesting. The best picture in this range of results is provided not by comparisons of scales distribution – presented in Tables 4 and 5 (for obvious reasons referring to less readable ‘group averages’), but by links between abnormal values of KON-2006 scales (determined, among others, by ROC analyzes during the construction of the questionnaire) and the occurrence and severity of symptoms included in Tables 6 and 7. They allow to determine the odds of the co-existence of symptoms and abnormal traits/aspects of neurotic personality, and instead of relying on the distribution of raw scales values, they provide information on individualized, also relatively rare, symptom-trait relationships.

These observations bring to the fore – in relation to both symptoms in terms of their occurrence (answers ‘a’, ‘b’ or ‘c’) as well as the extreme severity (answer ‘c’; this scale even for a rare in the researched group, extreme severity of urinary incontinence appears to be related to the trend at the borderline of statistical significance) – negative self-esteem (the KON-2006 scale of this name defines self-perception of the patient as being unattractive, worthless, dissatisfied [44–46]). Negative self-esteem and a sense of inferiority are, as mentioned above, typical elements of the picture of self-experiencing of patients with lower urinary tract symptoms.

The second feature clearly associated with both symptoms is envy – the scale ‘Envy’ includes the tendency of the patient to experience the frustration associated with the successes of others and their depreciation. It may be associated with experiencing frustration due to immaturity, the aforementioned sense of inferiority, hypothetical – lack of age-appropriate separation-individuation. Moreover, the symbolism of urination allows associations and interpretations in terms of envy, hostility and competition.

For the occurrence of pollakiuria, four scales of the KON-2006 profile were distinguished, mainly made up with similar content: ‘Feeling of being depended on others’, (the tendency of the subject to perceive oneself as a dependent, submissive to others, subversive, unable to refuse, subjecting his/her opinions and actions to others, and critically referring to own personality traits), ‘Demobilization’ (experiencing loss of hope and a decrease in the dynamics of life, fear of new challenges and situations, feeling tired, dissatisfaction with oneself), ‘Feeling of life helplessness’ (perceiving oneself as a non-decisive, awkward person, not seeking to achieve own goals, easily disorganizing and withdrawing in situations of accumulation of difficulties), ‘Feeling of lack of influence’ (the image of oneself as a person dependent on circumstances, force majeure, random events and other people, and experiencing harm due to this), which are probably related to depressive, avoidant and perhaps also traumatic aspects of patients’ experiencing.

The presence of urinary incontinence symptom in men and women was associated with abnormal values of two scales: ‘Feeling of alienation’ (perceiving oneself as a lonely person, deprived of social support, not understood, neglected) and ‘Exaltation’ (perceiving oneself as a very sensitive, fragile, emotional, changing moods, at the same time looking for support from others), and only in men – with low ‘Risk-taking tendency’ (the only ‘bipolar’ scale in the KON-2006, describing oneself as a seeker of a danger, of new situations; or the opposite – avoiding any risk – which is shown for men as correlated with involuntary urination), strong ‘Feeling of life helplessness’ (described above), and ‘Difficulties in interpersonal relations’ (the scale describes difficulties in relations with others as well as perceiving oneself as a person who cannot deal with contacts with people). The fact that in the group of men the relationships with the occurrence of urinary incontinence symptom were clearly stronger than in women (e.g., ‘Feeling of alienation’ OR = 8.49, in women 2.29) may be associated with a milder experiencing of this condition by women, probably being able to over-

come the discomfort more easily and using potential remedies (similar to those related to menstruation) or due to conditioning of the social role/common image of the man (masculinity)/woman (femininity). Similarly, the strong connection between 'Feeling of life helplessness' and a high OR = 7.84 in a group of men may show a different, stereotypical understanding of their social role. Also the scales 'Envy' and 'Exaltation' were associated with higher OR in men than in women.

Extreme severity, possible to analyze only in the case of pollakiuria symptom, was more strongly associated with many of the abovementioned scales – with higher OR coefficients than for the presence. In addition to the already mentioned 'Negative self-esteem', 'Feeling of alienation', 'Demobilization', 'Lack of inner locus of control', 'Feeling of guilt' (worrying, blaming oneself for own behavior and character traits), 'Difficulties in interpersonal relations', 'Envy', 'Narcissistic attitude' for both genders, while for women the scales: 'Asthenia' (low dynamism, sense of own mental weakness, dissatisfaction with life), 'Lack of vitality' (lack of life dynamics and perception of this dysfunction), 'Feeling of life helplessness', 'Exaltation', 'Impulsiveness' (impetuosity, contentiousness, irritability, perceiving oneself as a person unbearable for the environment, physically aggressive, at the same time disapproving such behaviors), 'Insecurity' (distrust of others, predicting failures and giving up on own goals, perceiving oneself as less resilient, abused, not understood); and for men the scales: 'Imagination, fantasizing', 'Pondering' (thinking about oneself and one's behavior, his/her uncertainty and sensitivity) and 'Feeling of overload'.

It is worth noting the relationships which are different in men – with 'Feeling of overload' and 'Imagination, fantasizing' (the tendency to create imaginations, especially grandiose ones, the desire to be admired and liked, which can be related to narcissistic features, expressed less directly than in the scale 'Narcissistic attitude'). In women, the strong relationship between urinary incontinence symptom and irrationality (the scale of this name describes the use of irrational cognitive schemas and wishful thinking) may be related to the co-occurrence of recollection of childhood and adolescent punishment for normal behavior such as masturbation and sexual games, described in another study [29]. Such interactions could cause stiffness of 'moral' principles regarding sexuality in at least some patients, as well as promote 'persecutory', incorrect religiosity, or external locus of control.

Obviously, the conducted analyzes indicate a probably bi-directional relationship between aspects of a neurotic personality and the presence and extreme severity of lower urinary tract symptoms – frequent and involuntary urination. Cause-and-effect relations, e.g., between shame and fear and the need/fear of the need for frequent urination or between mental arousal and a feeling of urge to urinate, between urinary incontinence and sadness, embarrassment and social isolation, are obviously not easy to determine – is not always known what appeared as first, it should always be considered whether the mechanisms of etiopathogenesis date back to the past, i.e., the childhood of the patient, or work also in the recent context of his/her adult life, and this requires an individual analysis of each case. It can be assumed that the burden of

symptoms at any age and during the research has impact on the personality and self-image of patients – in some patients contributing to low/negative self-esteem, feeling of inferiority, lowered mood, anancastic behavior, hostility, a tendency to avoid social relations and risk, feeling of weakness/asthenia, shyness, isolation, also described in relation to urological patients by other authors [e.g., 23, 33, 57].

This study is not free from limitations. First of all, it was carried out in the group of patients qualified for treatment in a day hospital with psychotherapeutic profile, therefore the results cannot be easily generalized to the population of all psychiatric patients. On the other hand, the possibility of generalization of the conclusions of this work, at least in relation to patients treated with psychotherapy, is related to the fact that it included a relatively large research group from the years 2004–2014, covering 2,450 patients. Secondly, the tools used in the study during the qualification for psychotherapy are focused neither on urological ailments (analyzes based on two variables describing the symptoms in colloquial language), nor on the burden related to such ailments, e.g., on a decreased quality of life. As mentioned earlier, it was not possible to precisely determine whether the patients' responses described diurnal or nocturnal pollakiuria – or both, nor is the information available whether urinary incontinence was accompanied by urge, or rather stress urinary incontinence, or whether it was completely involuntary nocturnal or diurnal urinary incontinence. The Neurotic Personality Questionnaire KON-2006 is a self-reporting and relatively new tool, although it obtained satisfactory psychometric properties [44–46].

Further verification of the obtained results requires more extensive prospective studies, including, among others, tools focused on assessing urological symptoms and the appropriate control group. It seems interesting to conduct a complementary study – the severity and profile of neurotic personality traits – in the group of urological patients. However, already obtained results, indicating a significant personality component in patients reporting psychogenic urinary symptoms, may suggest the presence of the functional component in urinary tract symptoms also in urological patients, thus confirming the postulate of the importance of taking mental state into consideration in the treatment of this group of patients.

Conclusions

1. The personality basis of neurotic disorders described by the scales of the KON-2006 is strongly associated with the occurrence of symptoms of frequent and involuntary urination.
2. Neither on the basis of correspondence analysis, nor using correlation analysis, it is possible to determine the cause-and-effect direction of the observed relationship. It may be assumed that in some patients – e.g., those suffering from long-term bed wetting – reduced self-esteem or relationship difficulties may be secondary, while in other patients the personality basis precedes and determines the occurrence of symptoms.

3. The strongest and sex-independent relation of the presence of both analyzed symptoms concerns the scales 'Negative self-esteem' and 'Envy'.
4. In the case of the occurrence of pollakiuria, an important relation mainly concerned the scales 'Feeling of being dependent on others', 'Demobilization', 'Feeling of life helplessness', and 'Feeling of lack of influence'.
5. The presence of urinary incontinence symptom was mainly related to 'Feeling of alienation' and 'Exaltation', and only in the subgroup of men – to low 'Risk-taking tendency' (avoiding risk), strong 'feeling of life helplessness', 'Difficulties in interpersonal relations'.
6. The most bothersome, extreme severity of symptoms – due to the number of subgroups, possible to analyze only in the case of pollakiuria – was associated with many of the above-mentioned scales, however, more strongly and also differently, e.g., in men with 'Feeling of Overload' and 'Imagination, fantasizing'.
7. It can be assumed that the psychogenic component is also important in the case of urological symptoms with established somatic background and should be taken into consideration in the treatment process.

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Address: Katarzyna Klasa
Jagiellonian University Medical College
Department of Psychotherapy
31-138 Kraków, Lenartowicza Street 14
e-mail: katarzyna.klasa@uj.edu.pl