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A Model of the Psychological Factors Conditioning Health Related Quality of Life in Urodynamic Stress Incontinence Patients After TVT

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1. Introduction

Urodynamic stress incontinence (USI) is the most common form of urinary incontinence (Thom, 1998; Lemack & Zimmern, 2000; Steciwko, 2002; Rechberger & Skorupski, 2005), accounting for about 50% of all patients with urinary incontinence (Foldspang & Mommsen, 1997; Rechberger, 2004; Rechberger & Skorupski, 2005). About 82% of USI patients are women (Kinchin et al., 2002, cited by Diokno, 2003; Rechberger, 2004; Barber et al., 2005). Approximately 63% of all women with urinary incontinence are diagnosed with USI, from 19% to 25% have urge urinary incontinence (UUI), while from 12% to 19% have a mixed form (Thom, 1998; Lemack, Zimmern, 2000; Steciwko, 2002; Rechberger, Skorupski, 2005). According to the International Continence Society, urodynamic stress incontinence is defined as the involuntary leakage of urine during increased abdominal pressure, in the absence of a detrusor contraction (Abrams et al., 2002; Kata & Antoniewicz, 1999; Rechberger & Skorupski, 2005; Kobashi & Kobashi, 2006). It occurs when the increased pressure inside the abdominal cavity caused by a cough or hard physical exertion is accompanied by an involuntary release of urine (Rechberger & Skorupski, 2005).

USI in women is caused by the insufficiency of the apparatus that closes the urethra, and/or hypermobility of the vesico-connection, when bladder functions are completely normal (Milart et al., 2001). This means that the reason for USI lies in the weakening of the pelvic floor muscles, whose basic task is to hold up the organs located in the pelvis, including the urinary tract. Strong pelvic muscles keep the urethra closed until a conscious decision is made to urinate. When these muscles are weakened, the result is an inability to maintain a sufficiently tight hold around the urethra, so that any pressure exerted on the bladder caused by a movement of the diaphragm (e.g. a sneeze, a cough, a sudden exertion, walking

on an uneven surface) can lead to an involuntary release of urine (Dutkiewicz, 2002; Rechberger & Skorupski, 2005).

A typical feature of USI should incorporate the general similarity of symptoms in the day to day and the lack of nocturnal enuresis or nocturia. USI is thought to be caused by many different factors. Petros's Integral Theory (Petros, 2005), which is widely accepted, associates functional disturbances of the pelvic floor with structural disorders. The pelvic floor is formed by organs (the bladder with urethra, the vagina and the anus, the fascia and ligaments that bind them, the muscles). To simplify somewhat, the contracting muscles stabilize the organs in relation to the connective tissue elements, so damage to the ligaments and connective tissue can result in the lack of proper closure (manifested by urinary or fecal incontinence) or vaginal dysfunction, and the resulting symptoms and discomfort of which the patients complain.

Due to the considerable prevalence and nature of the symptoms, USI is a major medical and social problem. The intimate nature of the symptoms and their negative impact on daily functioning produces a significant mental burden for both the patients and their partners, and causes the frustration of many psychological, social and existential needs (Wyman et al., 1990; Wyman, 1994; Broome, 2003; Chiaffarino et al., 2003; Møller & Lose, 2005; Papanicolaou et al., 2005).

The scope of the psychological problems caused by the symptoms of USI is particularly large in advanced stages of the disease (Lagro-Janssen et al., 1992a; 1992b). Lalos et al. (2001) found that the life of persons with urinary incontinence changes dramatically, in respect to family life, vocational life, and social life (including the quality of life):

- The nature and style of family life is changed, sexual activity with the partner is changed (see also Norton et al., 1988), and the family budget is burdened with expenses related to treatment and mitigation of symptoms, such as sanitary pads, diaper-panties, etc.
- Career plans are changed, vocational activity is limited, and sometimes a career change is necessary, or even withdrawal from professional work.
- Social functioning is impaired and social contacts are limited (see also Brown et al., 1998; Wein & Rovner, 1999; Anders, 2000; Thom, 2000; Tołłoczko, 2002; Smutek et al., 2004; Bidzan et al., 2005a,b; Bidzan, 2008).
- It is estimated that approximately 25% of person suffering from urinary incontinence are on disability pension, where one of the main reasons for a ruling of disability is the significant extent of the incontinence and the impossibility of working because of the disease. This can cause a feeling of low self-esteem, a loss of personal dignity and social position, deterioration of mood, and social isolation, which lowers the health-related quality of life (HRQOL; Norton et al., 1988).

The lack of treatment, or the postponement of treatment until many years after the first symptoms appear, can have a major impact on the appearance of both physical and mental complications (Banach, 2004).

The problem of evaluating HRQOL in persons with urinary incontinence has been perceived by researchers and clinicians, for whom HRQOL has become in recent years an extremely important indicator of the psychological functioning of patients. An assessment of HRQOL

is recommended by the International Continence Society. What is assessed with the help of HRQOL is the impact of the illness and its treatment on the patient's quality of life, not including other, non-medical aspects. Treating the patient as an active subject, rather than a passive object, plays a major role in the evaluation process, which requires taking into consideration not only the objective results of medical examinations, but also the patient's own assessment (Brown et al., 1999; Swithinbank & Abrams, 1999; Shaw, 2002; Tamanini et al., 2004).

Depending on the etiology and severity of urinary incontinence, the treatment of this condition includes both surgical procedures and conservative methods, such as kinesitherapy, behavioral therapy, physiotherapy (including biofeedback, electrostimulation, and magnetic fields), vault support, pharmacotherapy, and lifestyle modification.

Currently there are many (over 170) methods of surgical treatment of urinary incontinence. A particular surgical technique is selected individually for every given case. Patients with SUI constitute the main group qualified for the surgical treatment of urinary incontinence. Currently, the TVT technique (tension-free vaginal tape) is a commonly used surgical intervention for SUI however there are other modifications of the procedure and tape that is also widely used with similar efficacy – TVTO, rectus fascial sling etc. This technique was developed in 1994 by Ulf Ulmsten from the Uppsala University Clinic, and has been practiced in Poland since 1999. TVT is a widely used method of surgical treatment thanks to its minimal invasiveness and morbidity, and particularly due to its superior recovery rate when compared to other frequently used methods (estimated at 88%) and relatively low cost (Włodarczyk et al., 2003; Konabrocka, 2006; Rechberger, 2006). These considerations, along with the fact that there is virtually no possibility of modifying this original technique (Rechberger, 2006), were the reasons for selecting patients subjected to TVT for developing a model of HRQOL determinants in USI.

The aim of this study was to create a model describing the HRQOL determinants in this group of patients.

2. Material and methods

The initial population (N = 917) consisted entirely of patients treated in the period from 2002 to 2006 in the Pro-Vita Private Medical Center for Urinary Incontinence, in Gdansk, Poland.

All these patients were subjected to a thorough diagnostic process for urinary incontinence, consistent with the standards of the International Continence Society (ICS), as follows:

1. A detailed patient history was obtained, to provide information concerning the nature of the urinary dysfunctions, possible congenital or neurological causes, history of urinary tract infections, and the course of treatment to date (drugs taken, hormone replacement therapy, surgical procedures). The history included a range of information that could have a bearing on the diagnosis of urinary incontinence, such as presenting complaint, past medical history including obstetric and surgical history, medications and social history (Abrams et al., 1988; Jensen et al., 1994; Abrams et al., 2002; Milart & Gulanowska-Gędek, 2002; Rechberger & Skorupski, 2005).
2. A detailed clinical examination was performed, which included the following elements:
 - physical examination (focusing on the evaluation of the pelvic floor support);

- self explanatory (in order to exclude urinary tract infections before treating urinary incontinence, since inflammation of the urinary tract can give symptoms of urinary incontinence);
- a cough test (to objectivize the patient's subjective complaints; the cough test is performed in the supine position immediately after micturition, while the stress cough test is performed in prone or sitting position with full bladder; the release of urine through the urethra during the cough test is considered a positive result for USI; This indicates a low leak point pressure it should be remembered, however, than in from 5% to 10% of cases the patient continues to complain of incontinence despite a negative result on this test). This should be part of the physical examination.
- measurement of residual urine volume (the volume of urine remaining in the bladder after micturition should not exceed 10-15% of its capacity, i.e. 50 ml; the measurement is done by ultrasound scan; this evaluation is essential to preclude the possibility of incontinence resulting from overfilling of the bladder;
- an evaluation of the 72hrs urination journal traditionally called a bladder diary and should be for a total of 72hrs/3 days (in which the patient writes down the number of urinations, the time interval between them, and episodes of involuntary release of urine and traditionally the amount of fluid intake);
- the 24 hour pad weight test (objectively measuring the amount of urine released involuntarily during a standard set of physical exercises performed by the patient e.g. marching, sitting, climbing stairs, by measuring the mass or the electrical resistance of the sanitary pad before and after the exercises);
- an evaluation of the mobility of the urethra, called the "Q-tip test" (a test to reveal excessive mobility of the cervix of the urinary bladder and the proximal segment of the urethra, when the change of position of a cotton swab inserted into the urethra during the valsalva maneuver is greater than 30°);
- a urodynamic examination (an objective method to confirm the previous diagnosis);
- urethral profilometry (which makes it possible to measure intratubular pressure simultaneously along the entire length of the urethra, along with intravesical pressure); Urethral pressure has now become less of a key issue in incontinence and is traditionally completed at the time of a VCMG/CMG
- an electromyogram; Not routinely used but is done in conjunction with the VCMG/CM
- ultrasound and CT imaging (in the ultrasound test a high resolution vaginal head is used to observe the dynamics of changes in spatial relations between the cervix of the urinary bladder and the urethra); This imaging studies should be inserted after the the physical examination but before the invasive assesments ie CMG. This is not a standard evaluation tool in incontinence and is usually only utilized in the evaluation of suspected anatomical abnormalities or suspected calculus disease or malignancy complicating the presentation
- cystoscopy (Abrams et al., 1988; Abrams et al., 2002; Milart & Gulanowska-Gędek, 2002; Rechberger & Skorupski, 2005; Waszyński, 2005).

The results of the medical examination made it possible to determine for each patient the form (type) of urinary incontinence - USI, UUI, or mixed urinary incontinence (MUI) - along with the degree of symptom intensity.

The study population is 108 patients who underwent TVT for severe SUI refractory to conservative management.

This group underwent the following:

- a structured clinical interview (developed by the authors);
- an interview conducted by a psychologist, a psychiatrist, and a neurologist;
- the NEO-FFI Personality Inventory (by Costa and McCrae), which is used to assess five basic dimensions of personality: Neurotism, Extroversion, Openness, Agreeability, and Conscientiousness;
- the King’s Health Questionnaire (KHQ), used to assess the quality of life of women patients suffering from urinary incontinence;
- the Dyadic Adjustment Scale (DAS), developed by Spanier, which gives a thorough assessment of the quality of marital relations (general level, agreeability, consistency, satisfaction, emotional expression);
- the Coping Inventory for Stressful Situations (CISS), designed by Endler and Parker, which diagnoses styles of coping with stress conditioned by personality. These include the task-oriented style, the emotion-oriented style, and the avoidance-oriented style (this last style can have two variants: engaging in substitute activities and seeking social contacts).

2.1 A preliminary model of the factors conditioning HRQOL

On the basis of previous research (Bidzan, 2008) a model has been developed for the assumed relationships between HRQOL and selected psychological measures (personality traits, quality of relationship, and coping styles). The pathways analysis method was used. In the opinion of many researchers (e.g. Cwalina, 2000; Gaul & Machowski, 2004) this method is distinctly superior to both the ANOVA approach and factor analysis in testing correlational and differential accuracy on the basis of a multi-feature, multi-method matrix. Pathway analysis, unlike other methods, provides not only quantitative indices of weight (the “feature factor” and the “method factor”), but also a model of the structure of the data acquired by means of a given instrument.

The model we are proposing, which is shown in Fig. 1, takes in both the variables that directly influence the quality of life and the indirect variables.

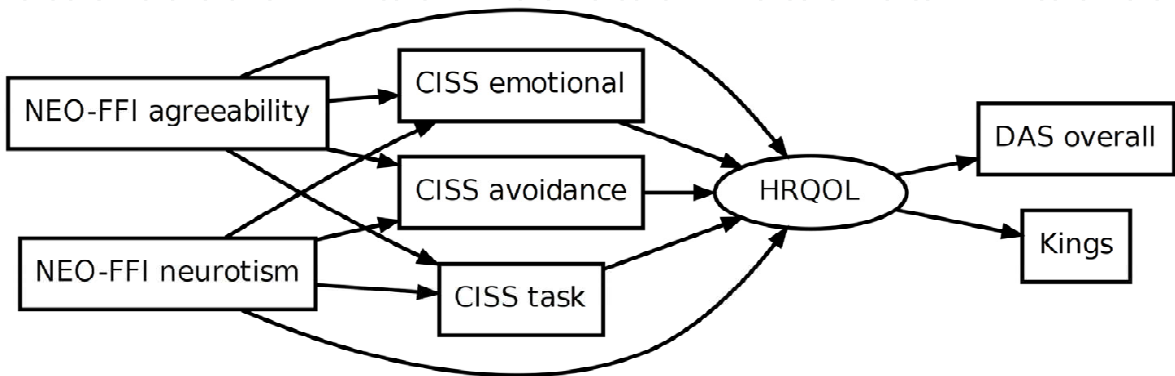


Fig. 1. Proposed model of relations between selected psychological measures and HRQOL in women patients with UII

For purposes of the preliminary model, HRQOL was used as a latent variable. The value of this variable was indirectly observed by means of the DAS and the KHQ. It was assumed that HRQOL assumes a value on the same scale as the overall QOL score in the KHQ.

The categories incorporated in the model include two personality dimensions ("agreeability" and "neurotism") measured by the NEO-FFI Personality Inventory, the coping styles measured by the CISS, the overall QOL measured by the KHQ, and the overall quality of the marital or partner relationship, measured by the DAS.

Given the limitations of the pathways analysis method, only the foregoing variables were taken into account.

The inclusion of Neurotism in the model is justified both by the results previously obtained by the first author of the present study (Bidzan 2008), pointing to statistically significant differences in the level of Neurotism between groups of women with different forms and different intensities of urinary incontinence, and by previously published reports indicating the essential role of this trait in shaping HRQOL. To be sure, these latter reports did not deal with urinary incontinence; still, the overall regularities should be valid in this respect. The inclusion of Agreeability was also motivated by results obtained in a previous study by the first author of the present study (Bidzan 2008), indicating that this is the only personality trait besides Neurotism that differentiated the groups of women studied, with various forms of urinary incontinence (USI, MUI, UII) and with varying degrees of intensity.

Apart from the direct impact of Agreeability and Neurotism on HRQOL, the model in question also assumes that these factors have an indirect impact, through the coping styles used by the individual. The quality of the marital or partner relationship (DAS overall) is associated with overall HRQOL according to King's Health Questionnaire.

2.2 Verification of the preliminary model of factors conditioning HRQOL - pathways analysis

The proposed model was then verified. The structural equations modeling technique was used. This makes it possible to ascertain dependencies, in terms of direction and strength, between the observed variables.

As mentioned above, the preliminary model used the latent variable "HRQOL," whose value was indirectly observed using the DAS and the KHQ. It was assumed that HRQOL takes on a value on the same scale¹ as the QOL score on the KHQ. The connection between HRQOL thus defined and the DAS is also statistically significant (see the model). For the purposes of the model, then, the results for HRQOL were negated, so that higher scores would mean a higher HRQOL, which makes it possible to make comparisons with results from other methods, especially the DAS.

Two dimensions from the NEO-FFI are incorporated in the model (Neurotism and Agreeability), since, as indicated by previous research, these have the greatest impact on the psychological functioning of patients with urinary incontinence, including the decision to undergo treatment, which can guarantee a change in HRQOL. These two

¹ The linear regression coefficient for the variable HRQOL and the overall score from the KHQ equals 1.

dimensions from the NEO-FFI are the only two exogenous variables in the model. The variance of these exogenous variables is assumed to be 1 (standardized sizes). In addition to the personality variables, the model also incorporates three coping styles from the CISS: task-oriented, emotion-oriented, and avoidance. These coping styles have not previously been studied in women with urinary incontinence, though the literature refers to other kinds of strategies used by patients with urinary incontinence, such as making a toilet map, urinating "in advance," etc. The manner of coping in the face of a difficult situation depends, among other things, on previous experiences and personality traits. Health, in turn, is largely dependent on the process of coping (Makowska & Poprawa, 2001), which can also affect HRQOL.

In the course of further analysis the model has been modified in such a way as to maximize the agreement of the correlation matrix reproduced in the model with the correlation matrix observed in research. The calculations were done using the R statistical environment (www.r-project.org) and the SEM package for this environment (Structural Equations Modeling). From the diagrams we can read out the following parameters of the model thus obtained:

1. unidirectional arrows: beta coefficients for linear regression equations;
2. bidirectional arrows: covariance of variables;
3. "reversed" bidirectional arrows: variance of error (additional variance of the variable not explained by the model).

The following factors were used to evaluate the compatibility of the model:

1. The value of the chi-squared statistic for the model. It was assumed that this value should not be statistically significant (i.e. the model does not differ significantly from a model that would fit the data ideally).
2. The Goodness of Fit Index (GFI), in the range from 0 to 1. Values greater than 0.95 are regarded as indicative of a good fit.
3. The Adjusted Goodness of Fit index (AGFI). A value of at least 0.9 indicates a good fit.
4. The Root Mean Square Error of Approximation (RMSEA). A value below 0.05 indicates a good fit.
5. The Bentler-Bonett Normed Fit Index (NFI). Values above 0.90 are acceptable.
6. The Tucker-Lewis Non-Normed Fit Index (NNFI). Values above 0.95 are acceptable.
7. The Bentler Comparative Fit Index (CFI). A value of 0.9 is acceptable.

The value can be interpreted as the percentage of the observed covariance that the model explains.

The proposed model displays a significant fit to the data.

In order to test the proposed model for the factors conditioning HRQOL in a group of USI patients who have undergone TVT - that is, to check whether and how much it reflects the actual dependencies between the variables, to specify the causal effects, and to specify the degree to which it explains the variance in HRQOL, a pathways analysis was performed (Dolińska-Zygmunt, 2000). The results are presented below in tables. The results of the analysis indicate that the model is correctly constructed, i.e. it accurately reflects the dependencies between variables.

3. Results

3.1 Verification of the preliminary model of factors conditioning HRQOL for the research group

Tables 1 - 4 present the results of our pathways analysis, the coefficients of the model, the covariance matrices observed in the sample, and the matrices reflected by the model.

Coefficient	Value
GFI (Goodness-of -fit-index)	0.96
AGFI (Adjusted goodness-of-fit -index)	0.88
RMSEA index	0
NFI (Bentler-Bonnett)	0.95
NNF (Tucker-Lewis)	1.38
CFI (Bentler)	1
Chi squared = 3.03 df= 9 Pr (>chsq)= 0.96	

Table 1. Results of pathway analysis for factors conditioning HRQOL in the study population

	Coefficient	SD	z value	Compatibility
CISS emotion←NEO.F FI agree	-0.30	0.13	-2.40	0.02
CISS avoid ←NEO.FFI agree	-0.47	0.20	-2.37	0.02
CISS task ←NEO.FFI agree	0.06	0.20	0.28	0.78
CISS emotion ←-NEO.FFI neuro	0.65	0.13	5.16	0.0000002
CISS avoid ←NEO.FFI neuro	-0.14	0.20	-0.72	0.47
CISS task ←NEO.FFI neuro	-0.38	0.20	-1.89	0.05
NEO.FFI agree←→ NEO.FFI neuro	-0.39	0.16	-2.38	0.02
HRQOL← NEO.FFI Agree	0.28	0.20	1.41	0.16
HRQOL← NEO.FFI neuro	-0.01	0.26	-0.05	0.96
HRQOL ← CISS task	-0.40	0.18	-2.25	0.02
HRQOL←CISS emotion	-0.28	0.26	-1.06	0.29

	Coefficient	SD	z value	Compatibility
HRQOL \leftarrow CISS avoid	0.27	0.18	1.51	0.13
CISS emotion \leftrightarrow CISS task	0.12	0.11	1.11	0.27
DAS overall \leftarrow HRQOL	0.71	0.41	1.71	0.09
CISS task \leftrightarrow CISS task	0.83	0.24	3.46	0.001
CISS emotion \leftrightarrow CISS emotion	0.33	0.09	3.46	0.001
CISS avoid \leftrightarrow CISS avoid	0.81	0.23	3.46	0.001
DAS overall \leftrightarrow DAS overall	0.84	0.25	3.41	0.001
KHQ \leftrightarrow KHQ	0.68	0.20	3.41	0.001

Table 2. Coefficients for the model

Observed covariance matrix	NEO.FFI Agree	CISS emotion	CISS avoid	CISS task	NEO.FFI Neuro	DAS overall	KHQ
NEO.FFI agree	1.00	-0.56	-0.42	0.20	-0.39	0.21	0.23
CISS emotion	-0.56	1.00	0.25	-0.20	0.77	-0.35	-0.22
CISS avoid	-0.42	0.25	1.00	-0.12	0.04	-0.03	0.21
CISS task	0.20	-0.20	-0.12	1.00	-0.40	-0.19	-0.33
NEO.FFI neuro	-0.39	0.77	0.04	-0.40	1.00	-0.18	-0.13
DAS overall	0.21	-0.35	-0.03	-0.19	-0.18	1.00	0.18
KHQ	0.23	-0.22	0.21	-0.33	-0.13	0.18	1.00

Table 3. Observed covariance matrix

Covariance matrix replicated by the model	NEO.FFI agree	CISS emotion	CISS avoid	CISS. task	NEO.FFI neuro	DAS overall	KHQ
NEO.FFI agree	1.00	-0.56	-0.42	0.20	-0.39	0.18	0.25
CISS emotion	-0.56	1.00	0.15	-0.20	0.77	-0.23	-0.32
CISS avoid	-0.42	0.15	1.00	-0.04	0.04	0.09	0.13
CISS task	0.20	-0.20	-0.04	1.00	-0.40	-0.21	-0.29
NEO.FFI neuro	-0.39	0.77	0.04	-0.40	1.00	-0.12	-0.17
DAS overall	0.18	-0.23	0.09	-0.21	-0.12	1.00	0.22
KHQ	0.25	-0.32	0.13	-0.29	-0.17	0.22	1.00

Table 4. Covariance matrix replicated by the model

These results made it possible to construct a model (see Fig. 2) of the factors conditioning HRQOL for these patients.

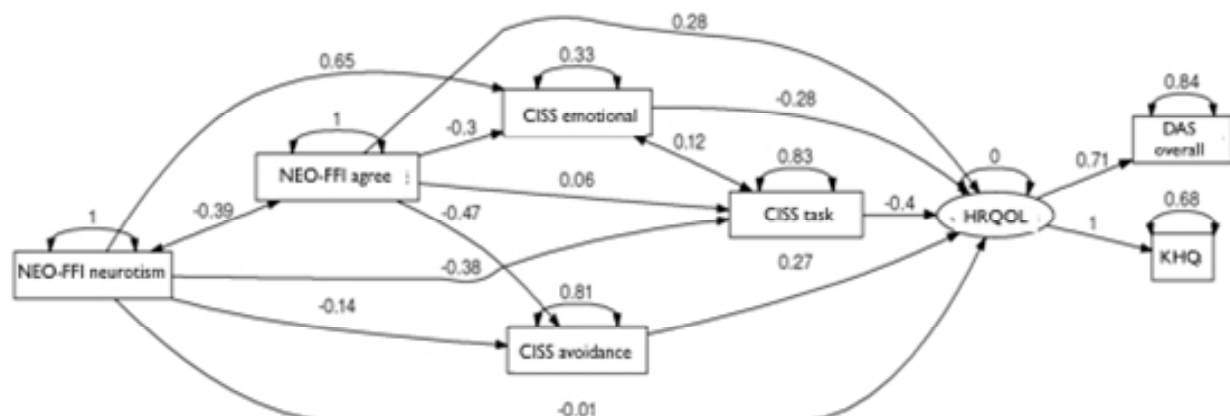


Fig. 2. A model of relations between selected psychological dimensions and HRQOL in women patients with UUI

In this model developed for patients who have undergone TVT surgery, one indirect sequence influencing the quality of life is observed: Neurotism – task-oriented style – quality of life. Neurotism has a negative effect on the selection of the CISS task-oriented style, and this determines a low level of HRQOL. The observed association with the task-oriented style may possibly be the result of dealing with the symptoms, whose severity decreased markedly in the patients' opinion following TVT surgery. Moreover, a direct positive influence of Neurotism is observed for the selection of the CISS emotion-oriented coping style. Additionally, Neurotism promoted a decrease in Agreeability (and therefore supported a confrontational attitude), hence activating emotion-oriented and avoidance-oriented styles. These latter findings, however, are not directly associated with the quality of life.

4. Discussion

In the model we developed for this group of women who had undergone TVT there is one indirect sequence of influences affecting HRQOL: Neurotism (-) - CISS task style (-) - HRQOL; that is, a lower level of Neurotism leads to the choice of the task-oriented style, and the less preference for this style, the higher the evaluation of HRQOL.

According to the assumptions of McCrea and Costa (2005), Neurotism is a personality dimension that reflects the level of emotional adaptation: the higher the score, the greater the susceptibility to experiencing such negative emotions as fear, anger, guilt, the higher the sensitivity to psychological stress, and by the same token the harder it is to cope with a difficult situation, which can have an impact on the subjective lowering of HRQOL. The impact of negative emotions on the possibility of adaptation has been confirmed in many studies.

The indirect influence that our model shows Neurotism exerting on HRQOL is consistent with the findings of other researchers (cf. Ferrie et al., 1984; Norton et al., 1990), who have reported that those women with USI function better who are characterized by a lower level of Neurotism, and with research results indicating that USI patients with low Neurotism

scores show better outcomes after surgical treatment (Berglund et al., 1997). It is reasonable to assume that improved psychological functioning has a positive effect on HRQOL.

The model also shows a relationship between HRQOL and the task-oriented coping style, which may result from the possibility of overcoming the symptoms, which are much less in subjective evaluation after TVT. At the same time, the model shows a relationship between less frequent use of the task-oriented style and a higher level of HRQOL. It may seem that this dependence should be rather the reverse, since, in the opinion of many researchers (Janssen et al., 2001) coping with the symptoms of urinary incontinence requires a task-oriented approach.

In the literature the most effective methods of coping with the symptoms of urinary incontinence are thought to include a restriction in the intake of fluids, very regular urination, making toilet maps (e.g. on the road from work to home), using single-use sanitary pads and napkins, and keeping a log of urination (Kinn & Zaar, 1998; Fitzgerald et al., 2001; Janssen et al., 2001). These techniques correspond, interestingly enough, with both a task-oriented approach and an avoidance approach (all forms of restriction, such as avoiding fluids), though this is seldom stated directly. This may be at least a partial explanation of the dependency we found. It should also be emphasized that many researchers (e.g. Czapiński, 1994; Bidzan et al., 2004b) emphasize the advantages gained from combining styles of coping with the problem, e.g. task-oriented with emotion, since in this case the patient begins to take some action: to undergo treatment, to comply with physician's orders, to search for their own ways of coping with the problem (using also support networks), or finally to decide on surgery. In other words, they cope more effectively with the disease (cf. Shaw, 2001), which can have a favorable impact on their evaluation of HRQOL. The task-oriented approach alone, though it seems more efficient, is not optimal, and when it is the only strategy used, it can lower HRQOL.

5. Conclusions

1. There is one indirect sequence of factors influencing HRQOL in USI patients who have undergone TVT: Neurotism - task style - HRQOL.
2. The relation between HRQOL and the task-oriented style may be associated with the possibility of overcoming the symptoms, which are significantly less in the evaluation of patients after TVT.
3. Our results point to the necessity for interdisciplinary cooperation between physicians and psychologists to develop effective interventions for genuine stress incontinence patients, and broader cooperation in the sphere of HRQOL.

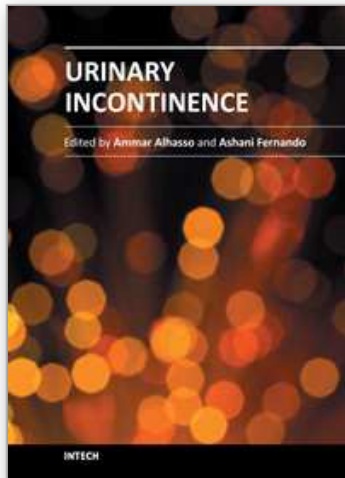
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