



CLINICAL PRESENTATION, SEXUAL FUNCTION AND QUALITY OF LIFE AS PREDICTORS OF SEXUAL SATISFACTION AMONG WOMEN WITH URINARY INCONTINENCE BEFORE A VAGINAL REVITALIZATION PROCEDURE

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Abstract

Purpose: Urinary incontinence (UI) is a common condition among women that affects quality of life, depressive symptoms and sexual function. The aim of the study was to verify whether clinical data, sexual dysfunction and quality of life may be independent predictors of life satisfaction of women with UI.

Methods: The study group included 76 patients who reported to a gynaecological clinic for vaginal revitalisation due to symptoms typical of UI. The patients completed: Life Satisfaction Questionnaire (FLZ), Female Sexual Function Index (FSFI), Incontinence Quality of Life Questionnaire (I-QOL) and Beck Depression Inventory (BDI).

Results: The UI patients presented a lower mean score regarding satisfaction with sex than a comparable healthy population. A high score on the FLZ-sex scale was predicted by lack of labour complications, a high score on the FLZ-health and FLZ-relationships scales, and FSFI arousal scale.

Conclusions: UI appears to be linked particularly strongly to low satisfaction with sex as a dimension of life satisfaction. Memory of labour complications was associated to dissatisfaction with sex. On the other hand, no link between satisfaction with sex and episiotomy, caesarean section or natural childbirth was found. High satisfaction with sex was linked to high satisfaction with general health and relationship, as well as high arousal as a sexual function.

Key words: satisfaction with sex, urinary incontinence, depressive symptoms.

PURPOSE

The World Health Organization (WHO) defines health as not just the absence of disease, but the presence of full mental, physical and social well-being. Hence, in today's research paradigm, disease is often assessed not only in terms of symptomatology and prognosis, but also how it affects quality of life and life satisfaction. Although

these concepts are often used interchangeably, they have slightly different meanings [1]. A determination of quality of life (QoL) entails a subjective assessment of daily functioning, and is often evaluated in the context of health (health related quality of life – HRQL). This evaluation usually comprises at least three key aspects: social, psychological and physical [1, 2]. In contrast, life satisfaction represents a more general, yet comprehensive, con-

scious assessment of life. An undeniably interesting issue is the impact of chronic illness on the perception of life satisfaction of the patient: a value related to well-being and, hence, with the positive aspects of life. In the area of gynaecology, the degree of life satisfaction has been examined among women suffering from polycystic ovary syndrome [3], premature ovarian failure [4] or infertility [5]. However, no studies have yet assessed the level of life satisfaction in a population of women experiencing urinary incontinence (UI).

The International Continence Society defines UI as a lack of control in the retention of urine (complaint of involuntary loss of urine) [6]. Depending on the cause, this can be divided into two general types: *stress UI*, characterised by urinary leakage during physical effort, sneezing or coughing, and *urge UI*, characterised by urinary leakage preceded by a sudden feeling, and an incapacity to control the need to pass urine. In addition, UI can also manifest as a range of combinations of the two, as well as other rarely observed causes. UI is a common condition (depending on the study and age of the patient, the incidence ranges from 5% to 69% [7]), which can significantly impair quality of life [8-10], exacerbate depressive symptoms [11-13] and cause widespread sexual dysfunction [14, 15]. UI is also mentioned as a risk factor for low life satisfaction, particularly in the elderly population [16].

The purpose of this paper is to evaluate life satisfaction and its individual dimensions among women with UI, and to determine independent predictors of sexual satisfaction.

METHODS

Characteristics of the study group

The study group comprised 79 patients who reported to a gynaecological clinic in the period 2015-2016 for revitalization of intimate areas by CO₂ fractional laser treatment. Each of the women had typical symptoms of UI: urinary leakage during exercise, sneezing, lifting or resting, sudden urges to urinate and frequent urination at night. The symptoms had occurred at least once in the month preceding the visit. Patients were informed about the purpose of the study, and about the anonymity and confidentiality of the results. The main inclusion criterion was informed consent. The exclusion criteria comprised a pre-existing or present diagnosis of psychiatric or neurological disorders, severe chronic disease, and experience of trauma (e.g. accident, death of a loved one) during the six months preceding the study. The research followed the principles of the Declaration of Helsinki.

Based on the above criteria, three patients were excluded from the study. Therefore, 76 women were included in the final analysis.

Questionnaires

Life satisfaction

The Polish adaptation of the FLZ (Fragebogen zur Lebenszufriedenheit) Questionnaire of Life Happiness was used to evaluate life satisfaction [17, 18]. The questionnaire consists of 10 spheres including health, work, finances, free time, children, self, friends, accommodation, relationships and sex, as well as other general indicators of life satisfaction. Each sphere contains seven statements scored from 1 (very dissatisfied) to 7 (very satisfied).

Sexual dysfunction

To measure sexual dysfunction among the study population we used a version [19] of the Female Sexual Function Index [20], standardized for Polish subjects. The questionnaire consists of 19 questions about six areas: desire, arousal, lubrication, orgasm, satisfaction and pain. The answers are scored from 0 to 6. Higher results indicate better sexual function: a score of 0 means no sexual activity for four weeks. In the present study, sexual dysfunction was assumed for a score of 27.5 points or less.

UI-specific quality of life

The Polish version of the I-QOL (Incontinence Quality of Life) [21] was used to evaluate quality of life. The questionnaire consists of 22 questions that assess three domains: avoidance and limiting behaviour, psychosocial impact and social embarrassment. Higher scores imply better quality of life.

Depressive symptoms

The Polish version of the BDI (Beck Depression Inventory) was used to evaluate symptoms of depression [22]. It consists of 21 questions scored from 0 to 3. A higher total score indicates more severe depressive symptoms. A score of 11 or more points was assumed to indicate the presence of depressive symptoms.

Questionnaire

In addition, a questionnaire was created for the purpose of the study. It was used interviews, and covered obstetric and gynaecological history, socio-demographic data and general medical history.

Statistical analysis

Statistical analysis was performed using SPSS 24.0 (Predictive Solutions). Continuous variables were characterised by mean (M) and standard deviation (SD). The test group consisted of more than 50 people. Thus, the limit theorem was used and the verification of normal distribution was abandoned [23]. Homogeneity of intergroup variance was studied using Levene's test. The Stu-

Table 1. A comparison of the studied group of women with urinary incontinence (UI) with a similar sample of women from a healthy population with regard to individual dimensions of the Fahrenberg Life Satisfaction Questionnaire (FLZ) (Polish version)

FLZ – dimensions	Healthy (n = 356)		UI (n = 76)		t	p	p corr.
	M	SD	M	SD			
Health	34.14	6.96	34.99	6.590	1.120	0.266	0.325
Profession	34.15	7.49	31.82	11.290	-1.802	0.075	0.104
Finances	30.4	7.68	33.34	6.885	3.725	< 0.001	< 0.001
Free time	34.04	7.85	34.49	7.322	0.532	0.596	0.656
Children	39.83	7.13	40.33	8.476	0.513	0.609	0.609
Oneself	35.9	6.39	37.96	5.090	3.529	0.001	0.002
Friends and acquaintances	35.32	6.03	37.55	4.579	4.250	<0.001	< 0.001
Residence	35.81	6.28	38.54	5.656	4.207	<0.001	< 0.001
Relationship/marriage	38.43	8.69	35.88	11.219	-1.980	0.051	0.081
Sex	36.63	8.33	34.24	7.480	-2.789	0.007	0.012
Total score	242.23	31.08	359.13	44.440	22.933	< 0.001	< 0.001

M – mean, SD – standard deviation, t – Student’s t-test, p – probability according to the Student’s t-test, p corr. – the probability for the test, taking into account Benjamin-Hochberg adjustments

dent’s t-test for one sample was used to compare the mean values of the individual FLZ scales with those of a similar population studied by Chodkiewicz [18]. A multivariate linear regression model was constructed to evaluate the predictive value of selected clinical, socio-demographic and psychological parameters for the assessment of satisfaction with sex. The reverse elimination method was used. The final model was evaluated with regard to the lack of autocorrelations (Durbin-Watson test), homoscedasticity and collinear constraints between variables (tolerance). Linear regression results are presented as non-standardised parameters (B), standard error (SE) and standardized parameters β [24]. The level of statistical significance was assumed to be $\alpha = 0.05$.

RESULTS

Life satisfaction – comparison with the healthy population

The tested subjects demonstrated a significantly lower mean score on the FLZ-satisfaction with sex scale than the healthy population identified by Chodkiewicz [18]. However, the women with UI reported significantly higher scores with regard to satisfaction with finance, satisfaction with self, friends and acquaintances, and a higher overall score compared to the healthy women. No significant difference in mean score was observed on the health, profession, free time, children or relationship/marriage scales (Table 1).

Predictors of satisfaction with sex

A linear regression model was constructed by means of stepwise elimination. The variables thought to poten-

Table 2. Table of frequencies of qualitative variables selected as potential explanatory variables for satisfaction with sex in the test sample

Factor	n	%
Smoking	6	7.9
Stress incontinence		
1 degree	16	21.1
2 degree	22	28.9
3 degree	8	10.5
Urge incontinence	19	25.0
Current infection	7	9.2
Number of natural births		
1	22	28.9
2	34	44.7
3	8	10.5
4	2	2.6
Number of caesarean sections		
1	9	11.8
2	2	2.6
3	1	1.3
Birth complications	10	13.2
Degree of episiotomy		
1 degree	33	43.4
2 degree	11	14.5
3 degree	2	2.6
Perineal rupture	9	11.8
HTZ or oestrogen preparations	9	11.8
Intrauterine insertion	22	28.9
Oral contraceptives	8	10.5

HTZ – hormone replacement therapy

Table 3. Descriptive statistics for continuous variables selected as potentially explaining satisfaction with sex in the study group

	M	SD
Age	44.74	10.98
BMI	24.35	3.88
FSFI desire	3.25	1.23
FSFI arousal	3.37	1.68
FSFI lubrication	3.73	1.92
FSFI orgasm	3.54	1.92
FSFI pain	3.79	2.24
I-QOL ALB	56.43	20.23
I-QOL PS	56.58	22.34
I-QOL SE	48.58	23.58
BDI	7.13	6.30

tially explain the FLZ sex score are presented in Tables 2 and 3, with the additional inclusion of the FLZ-health, FLZ-self and FLZ-relationship/marriage variables (Table 1). The model was constructed in 23 steps. It was found that the model fit the empirical data ($df = 4$, $F = 20.420$, $df = 4$, $p < 0.001$). The coefficient of determination (R^2) was 0.535. The following factors were found to be significant predictors of a positive outcome on the FLZ-sex scale: lack of complications during labour reported in the interview, a positive result on the FLZ-health and FLZ-relationships scales, and FSFI arousal. No significant relationship was found between satisfaction with sex and the following parameters: age, BMI, smoking, level of urge or stress UI, presence of symptoms of genitourinary system infections, number of natural births, number of caesarean sections, history of episiotomy, perineal rupture during

Table 4. The results of the linear regression model of satisfaction with sex (FLZ-sex) in the sample of women with urinary incontinence

Factor	B	SE	β	t	p
(Intercept)	13.636	3.779		3.608	0.001
Birth complications (0 – no, 1 – yes)	-5.530	1.801	-0.252	-3.070	0.003
FSFI arousal	1.842	0.407	0.415	4.529	0.000
FLZ health	0.216	0.103	0.191	2.104	0.039
FLZ relationship	0.210	0.055	0.316	3.858	0.000
Variables excluded from the model					
Age			0.106	1.153	0.253
BMI			-0.022	-0.245	0.807
Tobacco smoking (0 – no, 1 – yes)			-0.122	-1.487	0.142
Degree of stress UI (0 – none, from 1 to 3 – degree)			-0.029	-0.351	0.727
Urge UI (0 – no, 1 – yes)			0.055	0.667	0.507
Current genitourinary tract infection			0.054	0.626	0.533
Number of natural births			-0.013	-0.151	0.881
Number of caesarean sections			-0.022	-0.248	0.805
Degree of episiotomy (0 – none, from 1 to 3 – degree)			-0.140	-1.722	0.089
Perineal rupture (0 – no, 1 – yes)			-0.008	-0.094	0.925
HTZ or oestrogen preparations (0 – no, 1 – yes)			0.035	0.411	0.682
Interuterine insertion (0 – no, 1 – yes)			-0.032	-0.379	0.706
Oral contraception (0 – no, 1 – yes)			0.059	0.720	0.474
FLZ self			0.084	0.839	0.404
FSFI lubrication			-0.081	-0.601	0.550
FSFI desire			0.048	0.428	0.670
FSFI orgasm			0.055	0.422	0.675
FSFI pain			-0.153	-1.246	0.217
I-QOL ALB			-0.037	-0.394	0.695
I-QOL SE			-0.021	-0.234	0.816
I-QOL PS			0.016	0.168	0.867
BDI			-0.125	-1.206	0.232

birth, the use of HTZ, oestrogen preparations, oral contraception or IUDs, nor with the results of the FLZ-self, FSFI-lubrication, desire, orgasm, pain, I-QOL ALB, SE, PS or BDI in the test sample (Table 4).

DISCUSSION

The first part of the work compares life satisfaction among women with UI with healthy women from a Polish population described by Chodkiewicz [18]. The women in the test group only scored worse than the control group with regard to satisfaction with sex. Previous reports suggest that UI may negatively affect sexual function. Su *et al.* found UI to be a risk factor for poor lubrication during intercourse and dyspareunia. In a paper by Dogan *et al.*, women with UI evaded sexual activity and reported lack of sexual satisfaction and anorgasmia more often compared to the control group [25]. One possible explanation assumes that women with UI avoid sexual contact because of the fear of passing urine during intercourse or an unpleasant smell [26, 27]. It should be noted that older age and somatic comorbidity may be additional risk factors of poor satisfaction with sex. Thus, the need for screening for sexual dysfunction and sex dissatisfaction among all women with UI is emphasized, e.g. by means of simple self-report questionnaires [15, 28].

Interestingly, women suffering from UI reported significantly higher overall satisfaction with life and finances, and with self, friends and homes, relative to the control group. This is most likely due to the specificity of the test group; it was not formed from randomly-selected women, but those who reported for commercial treatment with relatively higher costs. It can be assumed that the participants were women who were relatively wealthy, and material resources typically accompany personal resources, high self-evaluation and a support network in the form of friends and acquaintances [29].

The second part of the work identified independent predictors of the occurrence of low satisfaction with sex among the women tested. One predictor was low satisfaction with health, but not type of UI nor the degree of severity of stress UI. Presumably, the self-perception of the disease itself, and not necessarily its progress, may have an impact on the enjoyment of sex. It was previously found that individuals suffering from serious mental disorders complained of worse satisfaction with sex compared to the control group [30]. For the women with UI, it was reported that somatic comorbidity and depressive symptoms were risk factors for poor satisfaction with sex [15]. The aforementioned papers indirectly confirm the results of the present study.

Another strong predictor of low satisfaction with sex was low satisfaction with relationships. This appears to be consistent with previous findings concerning non-clinical samples. Heiman *et al.* reported that the satisfaction with

sex is closely related to the satisfaction with relationships in a group of over one thousand pairs from five countries [31]. The women who trusted their partner, felt more secure in the relationship, and could openly talk about sex were more satisfied with their intimate lives [32, 33].

Childbirth complications were defined in our questionnaire as prolongation of the second stage of labour. This is when a woman feels the strongest cramps, and therefore the most pain; it can lead to a traumatic birth injury, and is accompanied by the greatest fear for the newly-born baby [34, 35]. It is interesting to note that this is another strong independent predictor of dissatisfaction with sex in the tested group. On the other hand, no link between satisfaction with sex and episiotomy, caesarean section or natural childbirth was found. It is possible that apprehension of a subsequent pregnancy and similar experiences during labour prevent the women from feeling full satisfaction with sex. The memory of the childbirth as a complicated one may indicate e.g. the negative emotionality of the patient, which is related to poor satisfaction with sex and greater concentration on the medical symptoms [36-38]. However, those conclusions are highly speculative and require further investigation.

The final strong predictor of low satisfaction with sex was a low evaluation of arousal in the FSFI questionnaire. Arousal affects the degree of lubrication during intercourse, and thus dyspareunia, and ultimately the overall assessment of satisfaction with sex [39].

Previous publications have discussed the possibility of dissatisfaction with sex or poor evaluation of sexual function being linked to episiotomy, caesarean section or natural childbirth; however, our findings did not indicate these factors to be independent predictors, most likely due to the distance in time of the evaluation from the birth: they are most influential during the puerperal period and for a short time afterwards [40].

Most women used contraceptives based on vaginal inserts with progesterone. Previous studies have shown this probably does not have any influence on sexual function [41, 42].

No link between satisfaction with sex and depressive symptoms or UI-related quality of life was found in the present study. This stands in opposition to the previous findings [43]. However, it should be remembered that lack of statistically significant associations does not mean lack of associations. It may be assumed that depression and quality of life prove to be predictors of satisfaction with sex in the case of a larger sample or use of different questionnaires. This thesis requires verification in future studies.

It is important to emphasise that this is the first work to evaluate life satisfaction in women suffering from UI. It arises from field of research that perceives UI as an interdisciplinary problem. Although UI is not an illness that shortens lifespan, it nevertheless has an influence on

the everyday activities of women, their satisfaction with life and their sexual function. Without a doubt, the importance of this issue should not be underestimated. It is necessary to carry out a thorough interview with patients, bearing in mind that those affected often do not report IU symptoms themselves [44, 45], and to offer multidirectional and comprehensive medical and psychological care.

STUDY LIMITATIONS

One limitation was that the study group was not formed at random; it was carried out as a naturalistic observation. Nevertheless, the sample reflects clinical reality because the women who reported to the gynaecologist did so with UI symptoms as the main cause. Another limitation was that the test group was relatively small, and the study was

retrospective. Future studies should be based on larger groups and assess variation in the studied parameters over time; they should also examine how the surgical and non-surgical treatment of UI influences improvement in life satisfaction within its individual spheres.

CONCLUSIONS

UI appears to be linked particularly strongly to low satisfaction with sex as a dimension of life satisfaction. Memory of labour complications was associated to dissatisfaction with sex. On the other hand, no link between satisfaction with sex and episiotomy, caesarean section or natural childbirth was found. High satisfaction with sex was linked to high satisfaction with general health and relationship, as well as high arousal as a sexual function.

Conflict of interest

Absent.

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