ISSN 1413-3555
Rev Bras Fisioter, São Carlos, v. 13, n. 2, p. 116-22, mar./apr. 2009
©Revista Brasileira de Fisioterapia

Comparison of quality of life for different types of female urinary incontinence

Comparação da qualidade de vida nos diferentes tipos de incontinência urinária feminina

Dedicação AC[1], Haddad M[2], Saldanha MES[1], Driusso P[3]

Abstract

Objectives: To compare the impact of the type of urinary incontinence on women's quality of life. **Methods:** A retrospective evaluation was conducted on the medical records of 77 incontinent women who underwent physical therapy treatment between February 2005 and October 2006. Based on the urodynamic test data, the women were classified into three groups: stress urinary incontinence (SUI), overactive bladder (OB) and mixed urinary incontinence (MUI). The subjects' history was taken, the women provided demographic data and they answered the King's Health Questionnaire, which is a specific questionnaire for assessing the quality of life among individuals with urinary incontinence. **Results:** Most of the patients (44%) had MUI. The patients affected by OB were significantly older than the patients in the other groups. The negative impact of incontinence on quality of life (General Health Perception domain) and lifestyle was significantly greater among the women affected by MUI than among the patients in the other groups. **Conclusion:** This study indicated that the negative impact of incontinence on quality of life was greater among patients with MUI.

Key words: urinary incontinence; quality of life; women's health.

Resumo

Objetivos: Comparar o impacto do tipo de incontinência urinária sobre a qualidade de vida em mulheres. **Métodos:** Foram avaliados retrospectivamente 77 prontuários de mulheres incontinentes que realizaram tratamento fisioterapêutico entre fevereiro de 2005 a outubro de 2006. De acordo com os dados do exame urodinâmico, as mulheres foram classificadas em três grupos: incontinência urinária de esforço (IUE), hiperatividade vesical (HV) e incontinência urinária mista (IUM). As voluntárias responderam a uma anamnese com dados demográficos e ao *King's Health Questionnaire*, questionário específico para avaliação da qualidade de vida em indivíduos com incontinência urinária. **Resultados:** A maioria das pacientes (44%) apresentou IUM. A idade das pacientes acometidas por HV foi significativamente maior se comparada à idade das pacientes dos demais grupos. As mulheres acometidas por IUM apresentaram um impacto negativo significativamente maior sobre a qualidade de vida (domínio percepção geral da saúde) e sobre a percepção de que a incontinência afeta de modo negativo a própria vida em comparação com as pacientes dos demais grupos. **Conclusão:** Este estudo indicou que pacientes com IUM apresentaram um maior impacto negativo sobre a qualidade de vida.

Palavras-chave: incontinência urinária; qualidade de vida; saúde da mulher.

Received: 20/02/2008 – **Revised:** 11/06/2008 – **Accepted:** 16/09/2008

[1] Department of Physical Therapy, Universidade Cidade de São Paulo (UNICID), São Paulo (SP), Brazil
[2] Department of Urogynecology, Hospital e Maternidade Leonor Mendes de Barros, São Paulo (SP), Brazil
[3] Department of Physical Therapy, Universidade Federal de São Carlos (UFSCar), São Carlos (SP), Brazil
Correspondence to: Anny Caroline Dedicação, Rua Mere Amédea, 415 - apto 81, Vila Maria Alta, CEP 02125-001, São Paulo (SP), Brazil, e-mail: annydedicacao@hotmail.com

Introduction

The International Continence Society (ICS) recently defined urinary incontinence (UI) as "involuntary loss of urine"[1] which can be classified as stress urinary incontinence (SUI), overactive bladder (OB) or mixed urinary incontinence (MUI).

SUI is characterized by urinary loss when intravesical pressure exceeds maximum urethral pressure in the absence of contraction by the detrusor muscle. SUI usually occurs in situations such as coughing, sneezing, laughter, jumping, and during activities like walking or changing position[2-8]. OB is characterized by involuntary loss of urine, associated with a strong urge to urinate, with or without a full bladder; it is also associated with the increase in urinary frequency, nocturia and urge urinary incontinence. Symptoms are usually caused by involuntary contractions of the detrusor muscle[6,9,10]. MUI is defined as urine loss associated with urgency and situations of increased intra-abdominal pressure, i.e. a combination of the two types previously described[3,11].

Although UI is not part of the physiological aging process, its prevalence has increased among older adults[12,13]. UI is a significant health problem in modern society, and it affects more than 50 million people worldwide, mainly women[12], at a rate of 2 women for every man[14]. Even though UI prevalence rates vary according to the definition and characteristics of the studies and target populations[15], it is estimated that 8 to 58% of adult women[1] have symptoms of incontinence[16,17]. Estimates show that OB affects approximately 40% of the women who seek medical treatment for UI[18]. In Brazil, almost 10% of women who visit the gynecologist have urine loss as the main complaint[15]. It is estimated that the US government spends between 10 and 16 billion dollars per year on incontinent women[1,11]. In Brazil, there are no estimates of these annual expenses.

UI etiology is often multifactorial. Some of the predisposing factors are menopause because of the reduction in female hormones; pregnancy and vaginal delivery, which suggest neuromuscular trauma to the pelvic floor muscles (PFM); deficiency or inadequate function of PFM[16]; neurological or biochemical changes frequently associated with the aging process; presence of predisposing diseases such as diabetes mellitus, multiple sclerosis, dementia, depression, obesity, bladder cancer, lithiasis, chronic urinary infections and Parkinson's disease. The influence of those factors is not yet well defined[3,19].

UI can have multiple effects on daily activities, social interactions and the perception of health. The major problems are related to social and mental wellbeing, including sexual problems, social isolation, low self-esteem and depression[8,11,20,21], which have a significant affect on quality of life, with psychological, physical, professional, sexual and social ramifications[5,11].

Quality of Life (QOL) is a multidimensional concept which incorporates the social, physical and mental aspects of the individual. The instruments used to measure QOL usually include two areas: general aspects of self-reported health and a specific aspect of the effects that a certain pathology or dysfunction causes on an individual's lifestyle. This second aspect can better detect changes after treatment and it is useful for measuring the evaluation process and comparing different treatments[1].

In 1997, the ICS recommended the inclusion of QOL questionnaires to complement clinical measures[5]. The *King's Health Questionnaire* (KHQ) was developed in English by Kelleher et al.[22] and it was translated and validated by Tamanini, D'Ancona and Netto Jr[23] in the Portuguese language. Since its development, this questionnaire has shown reliability and validity in the analysis of its psychometric properties and has been validated in 43 languages[22]. This questionnaire is highly recommended by the ICS and it is classified as A level for use in clinical research[22,23]. Therefore, the aim of this study was to compare the impact of each UI type (stress, overactive bladder and mixed) on the QOL of women.

Methods

Subjects

A survey was conducted with all of the medical charts of women with UI diagnosis who received physical therapy treatment at the physical therapy department of Leonor Mendes de Barros Maternity Hospital (HMLMB). UI diagnosis was confirmed through urodynamic testing between February 2005 and October 2006. Exclusion criteria were: neurological diseases, diabetic neuropathies, congenital urological disease, bladder cancer, urinary tract infection and neurogenic bladder. The diagnosis of the urodynamic test allowed the classification of women into three groups: SUI, OB and MUI.

During the referred period, 112 women were treated, however only 80 (30 had changed the phone number and 2 had died) were contacted by phone and/or by direct contact at the Urogynecology sector of HMLMB (annual gynecological checkup and/or participation in the treatment groups) and were informed about the characteristics of this project. Seventy-seven women agreed to disclose the data contained in the medical chart and they signed the consent form, according to resolution 196/96 of the National Health Council. The study was approved by the Research Ethics Committee of the

Sociedade Educacional Cidade de São Paulo (UNICID), protocol nº13198462.

Procedure

The data collected from the chart referred to the first physical therapy evaluation and included demographic data (age, educational level, race, marital status), an assessment of the urinary symptoms (practice of activities, sexual interest, dyspareunia and loss during sex), KHQ, a pelvic floor functional assessment (PFA) and UI discomfort.

KHQ consists of 21 questions, divided into 8 domains: (1) general health perception (1 item), (2) incontinence impact (1 item), (3) role limitations (2 items), (4) physical limitations (2 items), (5) social limitations (2 items), (6) personal relationships (3 items), (7) emotions (3 items), (8) sleep/energy (2 items)[14,15]. In addition to these domains, there are two other independent scales: the first evaluates the severity of UI (severity measures) and the second, the presence and intensity of urinary symptoms (urinary symptoms scale). KHQ is scored by its individual domains, therefore there is no total score. The scores vary from 0 to 100 and the higher the score is, the greater the impact on the QOL related to that domain.

The patients' discomfort was evaluated through the Visual Analog Scale (VAS). During the initial evaluation, the patient was shown a numeric scale of 0 to 10. Zero represented a normal life, and 10 represented the worst possible life due to the urinary incontinence[24]. In another scale, 0 represented the feeling of always being dry, and 10, very wet. The answer was verbal, and the examiner wrote down the results.

The PFA was performed in the lithotomy position according to a protocol established by the department of physical therapy. The patient was previously asked to contract the PFM as if to hold in urine. A physical therapist conducted the PFA test by digital vaginal palpation. The physical therapist verbally asked the patient to perform three voluntary perineal contractions with one-minute interval between the contractions. Digital palpation was only used during the contractions. Muscle strength was assessed in each contraction and classified according to Ortiz and Nunez[25]: zero - no objective perineal function, not even through palpation; 1 - absent objective perineal function, only recognized through palpation; 2 - weak objective perineal function, recognized through palpation; 3 - objective perineal function and opposing resistance, not maintained through palpation; 4 - objective perineal function and opposing resistance maintained through palpation for more than 5 seconds. The result of each contraction was recorded, and the final result was obtained by the mean of the three recorded values[25].

Statistical analysis

The data were analyzed with the software Statistica. The analysis of variance (ANOVA) was used to compare the quantitative variables (age, number of deliveries, number of vaginal deliveries, PFA, KHQ and VAS) between groups. Where the difference was significant, post hoc Turkey's test was undertaken to discriminate the differences. Also, the Chi-square test (X^2) was used to analyze the associations between the qualitative variables. The level of significance was set at 5% ($p \leq 0.05$).

Results

The subjects' mean age was 55.2±13.1 years old (34 to 85 years old). Most of the women (44.16%) had been diagnosed with MUI, 40.26% with SUI and 15.58% with OB.

According to Table 1, the subjects diagnosed as having OB were significantly older than the subjects of the other groups. There was no significant difference for the other variables.

As demonstrated in Table 2, there was an association between the UI type and occurrence of gynecological surgery and report of urinary loss during sex.

Table 3 shows the KHQ scores. It can be noted that the women diagnosed as having MUI had a significantly higher impact on QOL (general health perception domain).

Table 4 shows the VAS data. It can be noted that the women diagnosed as having MUI had a more negative perception of how UI affects their life, in comparison with the patients of the other groups.

Table 1. Sample characterization by groups (SUI, OB and MUI) regarding age, obstetrical history and the pelvic floor functional assessment.

	SUI (n=31)	OB (n=12)	MUI (n=34)	ANOVA
Age	52.94±10.19*	64.17±15.60	54.06±13.54*	0.03
Number of deliveries	3.84±2.10	2.75±1.71	4.35±2.78	0.14
Number of vaginal deliveries	2.55±2.08	2.00±1.65	3.38±2.81	0.16
Pelvic floor functional assessment	2.57±0.96	2.33±1.12	2.41±1.37	0.82

* significant difference compared to OB group.

Table 2. Comparison of urinary and gynecological symptoms between groups SUI, OB and MUI.

	SUI (n=31)	OB (n=12)	MUI (n=34)	X^2
Episiotomy	16 (51.61%)	6 (50%)	17 (50%)	0.16
Marital life	16 (51.61%)	6 (50%)	16 (47.05%)	0.16
Menopause	21 (67.64%)	8 (66.67%)	21 (61.76%)	0.87
Cystocele	14 (45.16%)	5 (41.67%)	15 (44.12%)	0.15
Gynecological surgery	23 (74.19%)	4 (33.33%)	17 (50%)	0.002
Avoids activities	16 (51.61%)	5 (41.67%)	16 (47.06%)	0.83
Active sex life	16 (51.61%)	6 (50%)	24 (70.59%)	0.22
Sexual interest	21 (67.74%)	9 (75%)	24 (70.59%)	0.89
Dyspareunia	17 (54.84%)	7 (58.33%)	20 (58.82%)	0.94
Urine loss during sex	12 (38.71%)	0 (0%)	14 (41.18%)	0.03

Table 3. Comparison between KHQ scores by group (SUI, OB and MUI).

Domains	SUI (n=31)	OB (n=12)	MUI (n=34)	ANOVA
General health perception (GH)	47.58±19.74*	38.58±22.51*	59.56±20.43	0.008
Incontinence impact (II)	69.89±31.45	66.67±31.78	75.49±29.94	0.63
Role limitations (RL)	56.99±37.21	43.06±31.35	59.80±42.47	0.28
Physical limitations (PL)	46.77±42.91	38.89±41.03	57.35±44.42	0.43
Social limitations (SL)	41.98±27.79	39.81±32.98	54.41±33.25	0.49
Personal relationships (PR)	46.91±39.23	54.17±34.17	60.34±38.42	0.48
Emotions (EM)	55.56±35.02	53.70±32.42	64.71±38.63	0.51
Sleep and energy (SE)	43.01±35.43	54.17±34.91	54.90±34.46	0.36
Severity (SEV)	62.80±28.64	45.00±28.59	61.57±25.85	0.14

* significant difference compared to MUI.

Table 4. Comparison between the Visual Analog Scale results by group (SUI, OB and MUI).

Visual Analog Scale	SUI (n=31)	OB (n=12)	MUI (n=34)	ANOVA
How does urinary incontinence affect your life?	6.09±3.15*	6.71±3.94*	8.30±1.89	0.002
Do you wet yourself when you have incontinence?	6.55±3.20	7.71±3.20	7.00±2.96	0.68

* significant difference compared to MUI.

Discussion

In the present study, most patients (44.16%) were classified as MUI diagnosed by a urodynamic test, similar to the findings by Feldner et al.[17]. The literature commonly verifies that SUI is the more prevalent among women, varying from 12 to 56%. However, in most studies, the diagnosis is based on clinical complaints[6,11,19,26]. Feldner et al.[17] compared clinical history and the urodynamic test and found a sensibility of 57.7% and specificity of 79.1%. They concluded that clinical complaints should not be used as the only diagnosis method and that the use of objective tests, such as the urodynamic and the physical exam, are of fundamental importance[11]. In a systematic review, Colli et al.[27] verified that the clinical history shows a low predictive value which corroborates the results of this present study because there was no statistical difference between the three types of UI in the PFA (Table 1).

The women diagnosed with OB were statistically older compared to the women diagnosed with SUI and MUI (Table 1). These results are similar to those found in the literature, which shows that SUI is more common in young women[3,4,9,15] because its risk factors are the practice of high impact activities, pregnancy and peripheral nerve lesions due to vaginal delivery. However, in the present study, the number of vaginal deliveries was similar among the groups (Table 1). In contrast, OB usually affects older women as it is related to senile changes such as decreased bladder capacity, loss of the ability to delay micturition, difficulty with structural and functional changes to the urethral sphincter during low-amplitude involuntary contraction and also because of predisposing factors such as diabetes mellitus, dementia and Parkinson's disease[9,10,14,28,29].

We also found that 74.19% of the women diagnosed with SUI and 50% of the women diagnosed with MUI had already been submitted to some kind of surgical intervention for the treatment of UI (Table 3). This shows that the surgical procedure is common among incontinent women and that its failure rate is high due to the reports of recurrence. Surgical procedure also implies a reduction in activities, a period of rest, complications, morbidity and high expenses[17,30].

According to Bushnell et al.[1], UI is a common health problem among women. It is more than a simple physiological condition and some important factors should be taken in consideration, such as type, frequency, severity, trigger factors, social impact, effects on hygiene and impact on the QOL (physical, emotional and social). Burgio et al.[31] verified that patient satisfaction is not related only to the decrease in incontinence because not all women who became continent were completely satisfied. This demonstrates the need to introduce methods to evaluate this impact, such as specific QOL questionnaires[32]. Oh et al.[6] compared the results of the pad test with the answers given in a generic health-related QOL questionnaire (*Medical Outcomes Study 36-item Short-Form General Health Survey*-SF-36) and in a specific UI questionnaire, *Incontinence quality of life*-IQoL, validated and reproduced in the English language by Wagner et al.[33]. In this study, the authors verified that patients with the most severe UI according to the pad test were the ones who suffered a greater impact on the QOL, as detected by the specific questionnaire in almost all domains. That was not the case with the generic questionnaire in which only 2 domains showed significant results, indicating that the condition-specific QOL questionnaires applied to a specific disease are more sensitive to relevant clinical questions than the generic questionnaires.

KHQ is a self-administered questionnaire and it takes approximately 5 minutes to be completed. It is a valid and reliable questionnaire which is widely used in clinical research[9,15,34,35] because it is capable of evaluating important aspects such as perception of UI impact on patients' lives and its severity. Health-related QOL is a subjective measure, answered by each patient. The questionnaire should be not only convenient and easy to understand but also have good psychometric properties that are sensitive to clinical changes[8].

Regarding the influence of UI according to KHQ, all three types of incontinence had a great impact on the patients' QOL (Table 3) because the KHQ mean scores were above 50 in most of the domains[17]. Oh and Ku[7] concluded that, although it is not a fatal condition, UI causes depression, anxiety and dissatisfaction[3,4,14] which have a negative impact on QOL. They also verified that UI patients report more depression, loneliness and sadness than the common population, and that the depression rate in UI patients can be compared to that of chronic diseases, such as diabetes and heart disease[20].

The present study also found that the impact on QOL varies greatly among incontinent women, as seen in Table 3, because the standard-deviation remained high in all the groups in the different domains, showing the subjective nature of QOL evaluation. This subjectivity can occur due to the diversity of social, cultural, religious and hygienic factors.

The women diagnosed with MUI scored higher in all of the KHQ domains compared to the women diagnosed with OB and SUI, however the only significant difference was in the general health perception domain (Table 3). These women also had a more negative perception of the impact caused by UI when compared to the other groups (Table 4) which corroborates to the results observed in the literature[6,7,11,13,17,36]. This may be due to the fact that the women suffer from a combination of SUI (urine loss during activities that increase intra-abdominal pressure) and OB symptoms (urgency, urge-incontinence, nocturia and increased frequency).

The results emphasize the importance of the QOL evaluation because it gives the physical therapist a better basis to plan and execute the treatment, taking into account the impact and the discomfort caused by UI.

Conclusion

The study leads to the conclusion that UI has a significant negative impact on the QOL of patients and that the general perception of health is worse in women diagnosed with MUI.

References

1. Bushnell DM, Martin ML, Summers KH, Svihra J, Lionis C, Patrick DL. Quality of life of women with urinary incontinence: Cross-cultural performance of 15 language versions of the I-QOL. Qual Life Res. 2005;14(8):1901-13.

2. Kluber L, Moriguchi EH, Cruz IBM. A influência da fisioterapia na qualidade de vida de mulheres com incontinência urinária: revisão. Rev Med PUCRS. 2002;12(3):243-9.

3. Margalith I, Gillon G, Gordon D. Urinary incontinence in women under 65: Quality of life, stress related to incontinence and patterns of seeking health care. Qual Life Res. 2004;13(8):1381-90.

4. Johnson TM, Ouslander JG. The shifting impact of UI. J Am Geriatr Soc. 2001;49(7):998-9.

5. Oh SJ, Ku JH. Does condition-specific quality of life correlate with generic health-related quality of life and objective incontinence severity in women with stress urinary incontinence? Neurourol Urodyn. 2006;25(4):324-9.

6. Oh SJ, Ku JH, Hong SK, Kim SW, Paick JS, Son H. Factors influencing self-perceived disease severity in women with stress urinary incontinence combined with or without urge incontinence. Neurourol Urodyn. 2005;24(4):341-7.

7. Oh SJ, Ku JH. Is a generic quality of life instrument helpful for evaluating women with urinary incontinence? Qual Life Res. 2006;15(3):495-501.

8. Rodríguez LV, Blander DS, Dorey F, Raz S, Zimmern P. Discrepancy in patient and physician perception of patient's quality of life related to urinary symptoms. Urology. 2003;62(1):49-53.

9. Homma Y, Koyama N. Minimal clinically important change in urinary incontinence detected by a quality of life assessment tool in overactive bladder syndrome with urge incontinence. Neurourol Urodyn. 2006;25(3):228-35.

10. Lubeck D, Prebil LA, Peeples P, Brown JS. A health related quality of life measures for use in patients with urge urinary incontinence: a validation study. Qual Life Res. 1999;8(4):337-44.

11. Coyne KS, Zhou Z, Thompson C,Versi E. The impact on health-related quality of life of stress, urge and mixed urinary incontinence. BJU Int. 2003;92(7):731-5.

12. Amarenco G, Arnould B, Carita P, Haab F, Labat JJ, Richard F. European psychometric validation of the CONTILIFE: a quality of life questionnaire for urinary incontinence. Eur Urol. 2003;43(4):391-404.

13. Lopes MHBM, Higa R. Restrições causadas pela incontinência urinária à vida da mulher. Rev Esc Enferm USP. 2006;40(1):34-41.

14. Kocak I, Okyay P, Dundar M, Erol H, Beser E. Female urinary incontinence in the west of Turkey: prevalence, risk factors and impact on quality of life. Eur Urol. 2005;48(4):634-41.

15. DuBeau CE, Simon SE, Morris JN. The effect of urinary incontinence on quality of life in older nursing home residents. J Am Geriatr Soc. 2006;54(9):1325-33.

16. Huang AJ, Brown JS, Kanaya AM, Creasman JM, Ragins AI, Van Den Eeden SK, et al. Quality of life impact and treatment of urinary incontinence in ethnically diverse older women. Arch Intern Med. 2006;166(18):2000-6.

17. Feldner-Junior PC, Bezerra LRPS, Girão MJBC, Castro RA, Sartori MGF, Baracat EC, et al. Valor da queixa clínica e exame físico no diagnóstico da incontinência urinária. Rev Bras Ginecol Obstet. 2002;24(2):87-91.

18. Brown JS, Posner S, Tewart AL. Urge Incontinence: New health-related quality of life measures. J Am Geriatr Soc. 1999;47(8):980-8.

19. Dugan E, Cohen SJ, Robinson D, Anderson R, Preisser J, Suggs P, et al. The quality of life of older adults with urinary incontinence: determining generic and condition-specific predictors. Qual Life Res. 1998;7(4): 337-44.

20. Stach-Lempinen BS, Hakala AL, Laippala P, Lehtinen K, Metsanoja R, Kujansuu E. Severe depression determines quality of life in urinary incontinent women. Neurourol Urodyn. 2003;22(6):563-8.

21. Fitzpatrick R, Fletcher A, Gore S, Jones D, Spiegelhalter D, Cox D. Quality of life measures in health care I: applications and issues in assessment. BMJ. 1992;305(6861):1074-7.

22. Kelleher CJ, Cardozo LD, Khullar V, Salvatore S. A new questionnaire to assess the quality of life of urinary incontinent women. Br J Obstet Gynaecol. 1997;104(12):1374-9.

23. Tamanini JTN, D'Ancona CAL, Netto-Junior NR. Validação do "King's Health Questionnaire" para o português em mulheres com incontinência urinária. Rev Saúde Pública. 2003;37(2):203-11.

24. Araújo MP, Oliveira E, Queiroz GC, Pimentel SHCO, Takano CC, Sartori MGF, et al. Impacto do estudo urodinâmico em mulheres com incontinência urinária. Rev Assoc Med. Bras. 2007;53(2):122-5.

25. Ortiz OC, Nunez FC. Valoración dinâmica de la disfunción perineal de classificación. Boletim de La Sociedad Latino Americana de Uroginecologia y Cirurgia Vaginal.1994;1(2):7-9.

26. Indrreskva S, Fosse OA, Hunskaar S. Norwegian national cohort of 3198 women treated with home-managed electrical stimulation for urinary incontinence-demography and medical history. Scand J Urol Nephol. 2001;35(1):26-31.

27. Colli E, Artibani W, Goka J, Parazzini F, Wein AJ. Are urodynamic tests useful tools for initial conservative management of non-neurogenic urinary incontinence? A review of the literature. Eur Urol. 2003;43(1):63-9.

28. Rett MT, Simões JA, Hermann V, Gurgel MSC, Morais SS. Qualidade de vida em mulheres após tratamento da incontinência urinária de esforço com fisioterapia. Rev Bras Gineco Obstet. 2007;29(3):5-9.

29. Currie CJ, Mcewan P, Poole CD, Odeyemi IA, Datta SN, Morgan CL. The impact of the overactive bladder on health-related utility and quality of life. BJU Int. 2006;97(6):1267-72.

30. Bø K. Is there still a place for physiotherapy in the treatment of female incontinence? EAU Update Series. 2003;1(3):145.

31. Burgio AL, Goode OS, Richter HE, Locher JL, Roth DL. Global ratings of patient satisfaction and perceptions of improvement with treatment for urinary incontinence: validation of three global patient ratings. Neurourol Urodyn. 2006;25(5):411-7.

32. Patrick DL, Martin ML, Bushnell DM, Yalcin I, Wagner TH, Buesching DP. Quality of life of women with urinary incontinence: further development of the incontinence quality of life instrument (I-QOL). Urology. 1999;53(1):71-6.

33. Wagner TH, Patrick DL, Bavedam TG, Martin ML, Buesching DP. Quality of life of person with urinary incontinence: development of a new measure. Urology. 1996;47(1):67-71.

34. Van-Brummen HJ, Bruinse HW, Van de Pol G, Heintz AP, Van der Vaart CH. What is the effect of overactive bladder symptoms on woman's quality of life during and after first pregnancy? BJU Int. 2006;97(2): 296-300.

35. Homma Y, Uemura S. Use of the short form of king's health questionnaire to measure quality of life in patients with an overactive bladder. BJU Int. 2004;93(7):1009-13.

36. Chiaffarino F, Parazzini F, Lavezzari M, Giambanco V. Impact of urinary incontinence and overactive bladder on quality of life. Eur Urol. 2003;43(5):535-8.