

Are there any differences in quality of life and sexual functions after various types of hysterectomy – does prophylactic salpingectomy matter?

Różnice w jakości życia i seksualności po różnych rodzajach histerektomii – czy profilaktyczna salpingektomia ma znaczenie?

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Abstract

Objectives: To assess if general quality of life and sexuality following hysterectomy performed due to benign conditions depends on the surgical approach. The SF 36v2 and FSFI were analyzed postoperatively among women after: supracervical laparoscopic hysterectomy (SLH), total abdominal hysterectomy (TAH), supracervical abdominal hysterectomy (SAH) and vaginal hysterectomy (VH).

Material and methods: Study group consisted of 392 women who underwent SLH, TAH, SAH or VH for benign indications between 2010 and 2013. Additionally we analyzed patients: I- with bilateral salpingectomy and II- without salpingectomy. Sexuality and general quality of life status were assessed 12 months after operation using two questionnaires: the FSFI and the SF 36v2.

Results: Postoperative SF 36v2 scores were significantly higher only in SLH group ($p \leq 0,05$). Furthermore postoperative FSFI scores were significantly higher in SLH when compared to SAH, TAH and VH groups ($p \leq 0,05$) and also significantly higher in SAH group than in VH group ($p \leq 0,05$). Additional prophylactic salpingectomy did not affect the woman's quality of life and sexuality.

Conclusions: Quality of life and sexual functions after SLH are better than after TAH, SAH and VH. Salpingectomy does not exert any significant influence, either on the general quality of life or sexuality in patients after different types of hysterectomy.

Key words: hysterectomy / sexuality / Health related quality of life / salpingectomy /

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Streszczenie

Cel pracy: Ocena wpływu różnych typów histerektomii wykonywanych z powodu zmian łagodnych na jakość życia i seksualność pacjentek w zależności od dostępu chirurgicznego, przy użyciu kwestionariuszów SF 36v2 i FSFI. Jakość życia i seksualność były analizowane pooperacyjnie u kobiet po: amputacji nadszyjkowej metodą laparoskopową (SLH n = 100), histerektomii całkowitej metodą laparotomii (TAH n = 97), amputacji nadszyjkowej metodą laparotomii (SAH n=98) i histerektomii pochwowej (VH n=97). Dodatkowo ocena wpływu salpingektomii na jakość życia i seksualność pacjentek.

Materiał i metody: Grupa badana składała się z 392 kobiet, u których wykonano SLH, TAH, SAH lub VH z powodu zmian łagodnych w latach 2010- 2013. Dodatkowo pacjentki z badanych grup były podzielone na 2 podgrupy: I-po obustronnej salpingektomii i II- bez salpingektomii. Seksualność i ogólna jakość życia były oceniane 12 miesięcy po operacji przy użyciu 2 kwestionariuszy: FSFI i SF 36v2.

Wyniki: Wyniki kwestionariusza SF 36v2 były istotnie statystycznie lepsze u pacjentek po SLH ($p \leq 0,05$) w porównaniu do pozostałych grup. Dodatkowo pooperacyjne wyniki kwestionariusza FSFI były istotnie lepsze w grupie pacjentek po SLH w porównaniu do pacjentek po SAH, TAH i VH ($p \leq 0,05$) oraz znacząco lepsze u pacjentek po SAH w porównaniu do VH ($p \leq 0,05$). Dodatkowo profilaktyczna salpingektomia nie miała wpływu na jakość życia i seksualność operowanych kobiet.

Wnioski: Jakość życia i seksualność po SLH jest lepsza niż po TAH, SAH i VH. Salpingektomia nie ma wpływu na ogólną jakość życia i seksualność pacjentek po różnych typach histerektomii.

Słowa kluczowe: **jakość życia / histerektomia / seksualność / salpingektomia /**

Introduction

Hysterectomy is the second most common gynecological surgery in the world. The most prevalent indications for this procedure include abnormal uterine bleeding (AUB) and symptomatic uterine leiomyomata. Currently, over 50000 hysterectomies due to benign conditions are performed annually in Poland. According to a recent report of the Organization for Economic Co-operation and Development of "International Variations in Rates of selected surgical procedures among OECD countries", a statistically significant decrease in the number of hysterectomies has been reported in New Zealand, Australia, USA and Canada, whereas no such trends have been observed in European countries. Nowadays, approximately 5.5 hysterectomies per 1000 women annually are performed in the USA, 3.3/1000 in Australia, 1.14/1000 in Mexico, 4.2/1000 in the United Kingdom, 5.26/1000 in Norway, and 5.0/1000 in Poland [1]. In order to reduce operative morbidity and the potential effects of hysterectomy on the urinary and sexual functions, numerous surgical techniques have been introduced into clinical practice. Supracervical hysterectomy, as less invasive, offers an alternative to total hysterectomy for benign uterine disorders. However, ACOG does not recommend this procedure as superior to total hysterectomy [2]. Women who are candidates for hysterectomy are concerned about its potential negative effects on their sexual function and quality of life (QoL), and, as a consequence, on their relationship with the partner. Anatomically, the uterovaginal plexus, which is responsible for innervation of the pelvic area and the upper vagina, is located close to the uterine cervix. Therefore, its damage during cervical excision might interfere with sexual arousal, lubrication, and orgasm [3]. After removal of the reproductive organs, some women are afraid of losing their femininity and sexual attractiveness. Women

undergoing surgical menopause experience an abrupt drop in gonadal hormones and are more likely to have symptoms which negatively impact their well-being, including hot flashes, sexual dysfunction, psychological problems, and testosterone deficiency, but this usually is not the case when the ovaries are preserved [4]. Recently, salpingectomy without oophorectomy was introduced into daily clinical practice in order to reduce the risk of future ovarian malignancy, especially since the procedure appears to be a safe and effective prophylactic measure. Additionally, ovarian function as measured by surrogate serum markers is not negatively affected by salpingectomy performed at the time of hysterectomy [5]. In fact, most studies show an enhancement in the general QoL during the early years after hysterectomy, obviously due to the fact that removal of the uterus does not cause any adverse physical and psychological outcomes in otherwise physically and psychologically healthy women [6].

The aim of the study was to establish possible differences in QoL and sexuality of women after hysterectomy, with and without prophylactic salpingectomy, depending on surgical techniques.

Material and methods

Participants and study design

A total of 700 women who underwent hysterectomy met the inclusion criteria but only 392 returned the completed questionnaires. The study group consisted of 392 otherwise healthy women who underwent various types of hysterectomy: SLH (n=100), TAH (n=97), SAH (n=98), or VH (n=97) for benign indications, between January 2010 and June 2013. During the study recruitment in our Department, 1827 hysterectomies were performed, (350 TAH, 139 VH, 1152 SAH, and 186 SLH), but only patients aged 40-65 years without any other serious comorbidities were included into the study (Table I).

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Table 1. Demographic characteristics of patients from study group.

Hysterectomy type	Mean age (years)	Mean bmi (Kg/m ²)	Mean parity N±sd
Slh (n=100)	47.41±4.59	26.88±5.82	2.57±1.32
Tah (n=97)	50.5±5.27	28.76±6.34	2.51±1.28
Vh (n=97)	50.1±4.98	28.97±7.41	2.69±1.37
Sah (n=98)	47.4±4.86	27.58±6.19	2.63±1.33

The exclusion criteria were as follows: lack of informed consent to participate, age <40 or >65 years, hysterectomy due to malignant diseases, reduced mental capability of understanding the survey, and any comorbidities which might influence the patient general well-being after surgery. Additionally, respondents from the investigated groups were divided in two subgroups: I-with prophylactic bilateral salpingectomy only, and II- without salpingectomy.

Questionnaires and informed consent forms were sent to the study participants by post after additional telephone confirmation of study participation. All patients completed the SF 36v2 questionnaire (Figure 1), but only sexually active subjects completed the FSFI questionnaire (Figure 2). Local Ethics Committee approved of the study.

Main outcome measures

Sexuality and QoL were assessed 12 months after the operation using two standardized validated questionnaires: the Polish version of FSFI (PL-FSFI) – a multidimensional, self-administered instrument for the assessment of female sexual function, and the SF 36v2 questionnaire - a standardized and validated instrument to measure QoL. FSFI is composed of 19 questions to assess sexual function over the previous 4 weeks. Specific questions are grouped in six domains or dimensions such as: desire, subjective arousal, lubrication, orgasm satisfaction, and pain. The subscale scores range from 0–6, with higher scores indicating better sexual function [7]. A total PL-FSFI score of ≤27.50 was considered as indicative of sexual dysfunction [8].

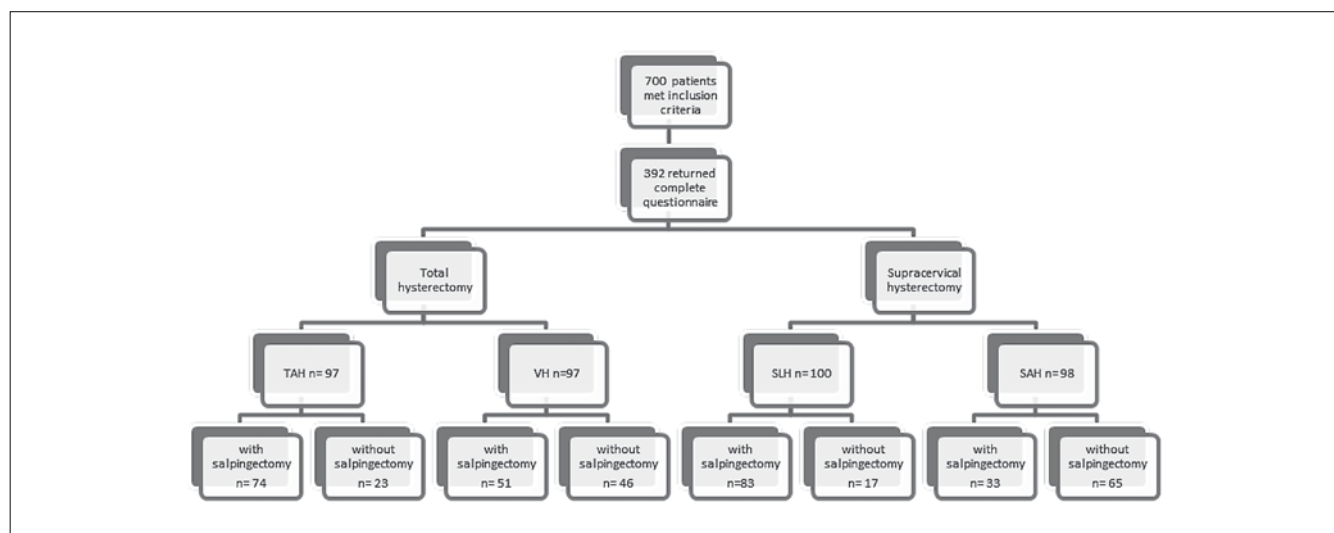


Figure 1. Flowchart of participants in the study who completed SF- 36v2.

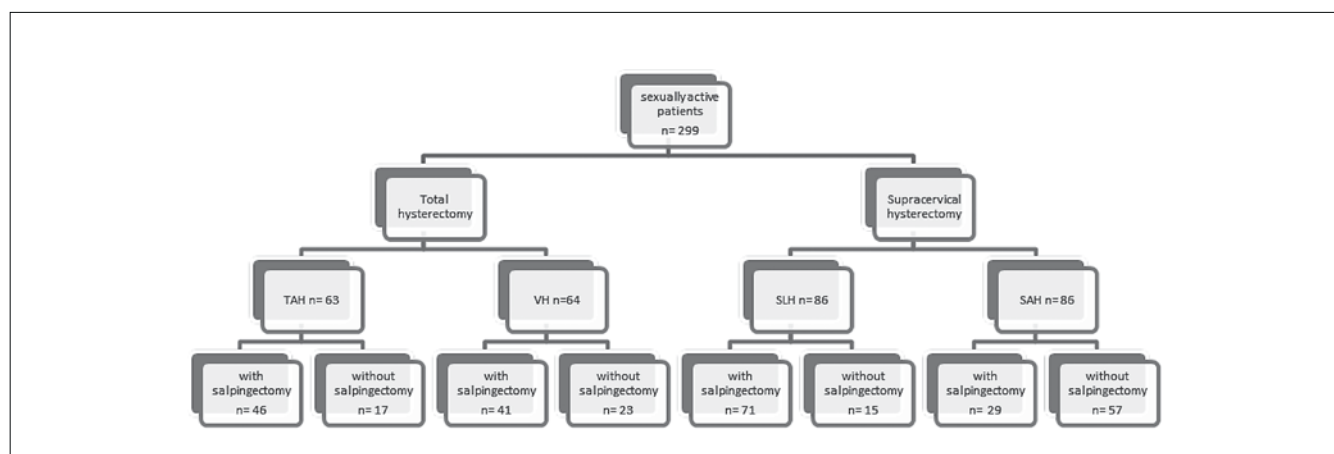


Figure 2. Flowchart of sexually active patients who completed FSFI.

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SF 36v2 is one of the most widely used instruments for measuring health-related quality of life (HRQOL). It measures eight aspects of HRQOL, including physical function (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functions (SF), role emotional (RE), and mental health (MH), which fall into two categories: the physical component summary (PCS), including PF, RP, BP, and GH, and the mental component summary (MCS), consisting of VT, SF, RE, and MH [9].

Statistical analysis

Statistical analysis was performed using Statistica 10. Normality of data distribution was assessed using the Shapiro-Wilk test. Due to significant deviation from the normal distribution, the nonparametric Kruskal-Wallis test was applied to explore significant differences in the responses of the FSFI and SF 36v2 tests among the SLH, SAH, TAH, and VH groups. In case of rejection of the null hypothesis, the post-hoc test (two sided) of multiple comparisons of average ranks was used. The Mann Whitney U-test with Bonferroni correction was used to assess differences in FSFI and SF 36v2 results between subgroups I (patients with additional prophylactic salpingectomy) and II (patients without salpingectomy), in each operating group separately. The p-value of 0.05 was considered as statistically significant.

Results

During the study period, a total of 700 women who underwent hysterectomy due to benign uterine disorders met the inclusion criteria. However, only 392 (56%) patients who signed the informed consent forms returned both completed questionnaires [SLH (n=100), TAH (n=97), SAH (n=98), and VH (n=97)]. Among the study participants, 299 (76%) women were sexually active in the SLH (n = 86), TAH (n = 64), SAH (n=86) and the VH (n=63) groups. Patient demographic characteristics did not differ significantly among the study groups.

Mean postoperative FSFI scores in the SLH, SAH, TAH and VH groups were 28.39 ± 5.12 , 26.24 ± 6.30 , 23.99 ± 6.25 , and 23.36 ± 5.38 , respectively. The value of Kruskal-Wallis test was 38.4, which indicated statistically significant differences between the investigated groups ($p < 0.05$). The results of the multiple comparisons of average ranks revealed the postoperative FSFI scores to be significantly higher in the SLH group as compared to the TAH and VH groups, and also in the SAH group as compared to the VH group ($p < 0.05$). There were no significant differences between the SLH and SAH groups and SAH and TAH groups (Table II).

Mean postoperative PCS and MCS scores of patients (n=392) were 51.25 ± 7.94 and 45.84 ± 8.56 , respectively. The value of the Kruskal-Wallis test indicated statistically significant differences between the studied groups ($p < 0.05$) only for the PCS category. The results of the multiple comparisons of average ranks for this variable showed that the PCS scores were significantly higher in the SLH group (53.95 ± 7.78) than the TAH (49.30 ± 7.90) and VH (50.38 ± 7.90) groups ($p \leq 0.05$). There were no significant differences between the PCS scores in the SLH and SAH groups. Postoperative MCS scores in all analyzed groups did not differ significantly: SLH 46.57 ± 8.56 , TAH 46.51 ± 8.64 , VH 44.71 ± 8.69 and SAH 45.55 ± 8.64 (Table III).

Table II. Outcomes of FSFI test in sexually active patients groups

Hysterectomy type	Mean \pm SD	CI 95%
TVH (n=64)	23.36 \pm 5.38	22.01 to 24.70
LSH (n=86)	28.40 \pm 5.13	27.30 to 29.50
SAH (n=86)	26.24 \pm 6.31	24.88 to 27.59
TAH (n=63)	23.99 \pm 6.25	22.41 to 25.56
Total (n=299)	25.77 \pm 6.09	25.08 to 26.46

Table III. Outcomes of SF 36v2 test in investigated groups

Method	Category	Mean \pm SD	CI 95%
LSH (n=100)	PCS	53.95 \pm 7.12	52.54 to 55.37
	MCS	46.57 \pm 7.73	45.04 to 48.11
TAH (n=97)	PCS	49.31 \pm 7.60	47.78 to 50.84
	MCS	46.51 \pm 9.53	44.59 to 48.43
SH (n=98)	PCS	51.29 \pm 7.98	49.69 to 52.89
	MCS	45.55 \pm 9.07	43.73 to 47.37
TVH (n=97)	PCS	50.39 \pm 8.40	48.69 to 52.08
	MCS	44.71 \pm 7.79	43.14 to 46.28

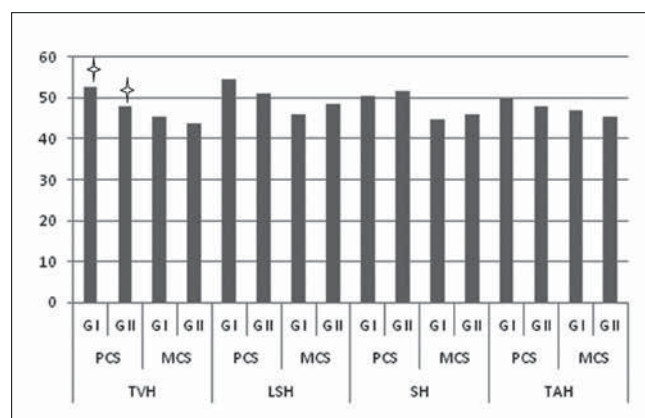


Figure 3. The results of SF-36v2 test in patients groups. GI- patients after salpingectomy and G II- patients without salpingectomy. There were no statistically significances between results of SF-36v2 domains in all patients groups except TVH PCS category. (* $p < 0.05$)

Prophylactic salpingectomy was performed in 241 patients, whereas fallopian tubes were preserved during surgery in 151 subjects. The results of the Mann-Whitney U-test did not indicate any statistically significant differences in the quality of physical (PCS) life between patients with removed fallopian tubes and those with the retained adnexa in the TAH, SAH and SLH groups. In the VH group, we observed a statistically significant difference in the quality of physical life between patients with and without additional salpingectomy. Patients with removed fallopian tubes declared a better quality of physical life ($p < 0.05$). There were no differences in the quality of mental (MCS) life between patients in any of the investigated groups (Figure 3).

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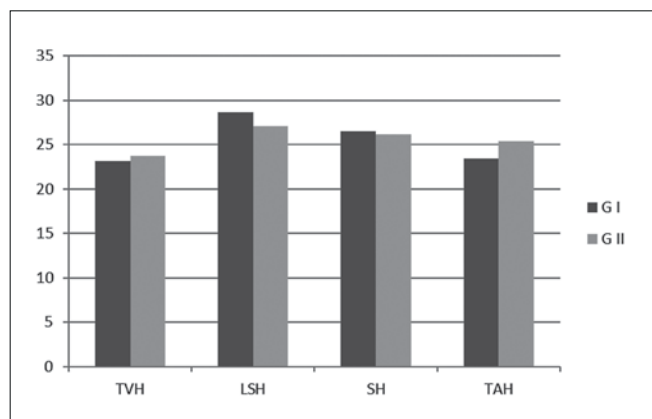


Figure 4. The results of FSFI test in patients groups. G I- patients after salpingectomy and G II- patients without salpingectomy. There were no statistically significances between results of FSFI domains in all patients groups.

QoL is the same in patients after prophylactic salpingectomy and those with intact oviducts. At present, statistically significant improved QoL in patients after VH with salpingectomy is difficult to explain and needs further investigations.

Among sexually active patients (n=299), 187 prophylactic salpingectomies were performed, whereas the fallopian tubes were retained during surgery in 112 subjects. The results of the Mann-Whitney U-test did not indicate any statistically significant differences between patients with removed fallopian tubes and those with retained adnexa in any of the study groups (Figure 4). Salpingectomy, regardless of the type of hysterectomy, did not affect the quality of life or sexual functions.

Discussion

Hysterectomy is associated with relatively few complications and is generally linked with a marked improvement in the health-related quality of life, although some concerns have been raised about long-term adverse effects of hysterectomy, especially on the pelvic floor function, including pelvic organ prolapse, urinary incontinence, bowel dysfunction, sexual function, and the formation of pelvic organ fistulas [10]. Additionally, the decision to have the uterus removed is an emotionally and psychologically difficult process for a vast majority of women. When presumed negative effects of hysterectomy on the pelvic floor anatomy and function are concerned, several possible mechanisms should be taken into account. Iatrogenic injury to the supportive fascia and ligaments, with concomitant changes in the anatomical relationships between the bowel, bladder and the vagina, together with decreased collateral blood supply and innervation to the pelvic organs, might be responsible for long-term impact on the pelvic organ function [11]. Therefore, every attempt to reduce the necessary extent of the surgery can, theoretically, decrease the possibility of undesirable postoperative outcomes [12]. Since the majority of hysterectomies worldwide are performed due to benign indications, the extent of supracervical hysterectomy (either laparoscopic or abdominal) should be enough to treat bothersome symptoms and improve QoL [13]. Women's sexuality is a very complex phenomenon, conditioned by numerous cultural, religious, emotional, and physical factors.

Also, it is modified by important additional determinants such as age, menopause, increased weight, metabolic changes, and comorbidities, which may negatively affect the quality of sex life and intimacy [14]. Some patients are also concerned that hysterectomy itself can affect their quality of sexual life. On the other hand, in some countries women are unwilling to discuss their sexual problems. This is also the case in Poland, where sexuality continues to remain a taboo subject. Nevertheless, several studies demonstrated that removal of the uterus has a positive effect on the general quality of life and sexual functions [15], while others reported otherwise [16]. Data regarding the surgical approach remain conflicting. Some authors claim that there are no differences in QoL and sexuality among patients undergoing different types of hysterectomy, while others report contradictory findings. Radosa et al. [15], assessed the sexuality and QoL status preoperatively and 6 months after hysterectomy using the FSFI and the EQ-5D questionnaires, and compared three procedures, i.e. VH, SLH and TLH (total laparoscopic hysterectomy). In that cohort, hysterectomy had a positive effect on postoperative sexual functions but there were no differences among the groups. In our material, sexuality as measured by FSFI was better after supracervical hysterectomy, regardless of the surgical approach, as opposed to data presented by Gimbel et al., who found no differences between supracervical and total hysterectomy with regard to QoL measured by the SF 36 questionnaire and sexual functions measured by a validated Danish questionnaire [17]. This may be the result of the fact that we compared slightly different patient groups (TAH, SAH, VH and SLH), probably slightly different surgical techniques, or the fact that our patients completed the questionnaires at home, as opposed to in the presence of a doctor, which made them more honest about their replies. Kilkku et al. [18], compared the psychological complaints after TAH and SAH preoperatively and 6 weeks, 6 months, 1 year, and 3 years postoperatively and found that nervousness, irritability, and depression significantly decreased during the follow-up period in the SAH group, but not in the hysterectomy group [18]. The same authors also compared the effect of TAH and SAH on the libido and the frequency of orgasms [19]. They reported reductions in orgasms after TAH, as compared to SAH, which is in accordance with our results. Contrary to those findings, data published by Thakar et al., and Kuppermann et al., revealed no differences in QoL (SF 36 questionnaire- Thakar; MOS- Kuppermann) and sexual functions (General Health Questionnaire 28- Thakar; MOS Sexual Problems Scale and BISF-W -Kuppermann) in woman after TAH and SAH [20,21]. Similar observations were reported by El-Toukhy et al., who observed no differences in the urinary and sexual functions among patients after TAH, VH, and TLH. Sexual symptoms were assessed with the use of standardized and internally validated questionnaire [22]. It should be mentioned that in this study, the SAH group was excluded from the analysis due to the small sample size. As expected, the less invasive approach – SLH resulted in the best PCS score in our research, which was consistent with previously published data [23]. It is probable that better physical functioning after subtotal hysterectomy in our study group accounted for better sex-related QoL after cervix-sparing surgery, as reported previously [19]. The possible explanation of these findings might be the fact that during supracervical hysterectomy the uterovaginal plexus responsible for internal orgasms is fully preserved, thus

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leaving sexual arousal unchanged. Nonetheless, numerous, especially long-term, effects of either type of hysterectomy on sexual functions still remain unknown [21]. Despite the recommendations by Kives et al., in our study group, patients after VH reported poorer QoL, regardless of proper pelvic floor anatomy [24]. As far as advantages and disadvantages of various modes of hysterectomy are concerned, especially subtotal with preservation of the ovarian function, an individualized approach based on the woman's predisposing factors should be considered. On the other hand, our data clearly show that additional salpingectomy, regardless of the type of hysterectomy, does not negatively affect the woman's QoL. This is very important, since prophylactic salpingectomy may offer clinicians the opportunity to prevent ovarian cancer in their patients, without compromising the quality of life. Currently, such a procedure is performed by 54% of the clinicians and probably this number will increase in the near future [25].

Based on our findings, it seems safe to conclude that laparoscopic supracervical hysterectomy with bilateral salpingectomy should be the procedure of choice for middle-aged women, operated on due to benign conditions of the uterine corpus, especially when the future quality of sexual life is taken into account, and if there are no contraindications for retaining the cervix.

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