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# Comparison of prevalence of hypoactive sexual desire disorder (HSDD) in women after five different hysterectomy procedures

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#### ARTICLE INFO

#### ABSTRACT

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Keywords: HSDD Hysterectomy TLH LASH LAVH Sexuality Subtotal hysterectomy Abdominal hysterectomy Vaginal hysterectomy *Objective:* The advantages of the various methods used for hysterectomy are currently a topic of debate, and there is particular controversy over whether the cervix should be left in situ or not. The aim of this study was to compare the prevalence of hypoactive sexual desire disorder (HSDD) after five different hysterectomy procedures.

*Study design:* The Brief Profile of Female Sexual Function (B-PFSF) score was measured to compare postoperative prevalence of HSDD after the different surgical procedures. The questionnaire was sent to 590 women who had undergone hysterectomy between 2002 and 2007 for benign conditions. The following procedures were performed: abdominal hysterectomy (AH), vaginal hysterectomy (VH), laparoscopy-assisted vaginal hysterectomy (LAVH), laparoscopic supracervical hysterectomy (LASH), and total laparoscopic hysterectomy (TLH).

*Results:* A total of 304 questionnaires returned and 258 were found to be eligible for analysis. The mean follow-up intervals were 2 years for women after LASH and TLH and 3 years for women after AH, VH, and LAVH. The women in the AH group were significantly older than those in the LASH group, and the women in the VH group were significantly older than those in the LASH or TLH groups. The median B-PFSF score was highest at 26 in women after LASH, 25 in women after TLH, 23 in women after LAVH, 23.5 in women after VH, and 21 in women after AH. There were no statistically significant differences between the groups.

*Conclusions:* No differences were observed using the B-PFSF score with regard to the prevalence of HSDD after hysterectomy, irrespective of the surgical technique used.

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#### 1. Introduction

Hypoactive sexual desire disorder (HSDD) is a deficiency or absence of sexual fantasies and desire for sexual activities that causes marked distress or interpersonal difficulties and is reported to have a prevalence of 7–16% in Europe [1] and about 10–30% in the USA [2,3]. HSDD occurs in both premenopausal and postmenopausal women [1,2,4,5] and is associated with significant levels of emotional and psychological distress, as well as reduced sexual and relationship satisfaction. It is also linked with reduced mental and physical health [1,4,5]. Factors that may affect sexual desire are psychosocial variables, aging, perimenopausal or menopausal status in women, various comorbid conditions, pelvic organ surgery and medications [5,6]. HSDD is by far the most common form of female sexual disorders in midlife women and the diagnosis is largely based on the medical interview without any assessment of sex steroid hormones [2,7].

Between 2005 and 2006, a total of 248,220 women underwent hysterectomy for benign disease in Germany. Laparoscopic hysterectomy is becoming increasingly important, with 12.4% of the operations being carried out using laparoscopic techniques. More than 60% of the laparoscopic hysterectomies were subtotal [8]. The role of the cervix in sexual arousal and sensation is completely unknown. One reason for leaving the cervix in situ is the expected benefit for sexual function after the operation, as the cervix is thought to play a potential role in sexual arousal and orgasm, probably due to stimulation of the Frankenhäuser uterovaginal plexus [9].

Abbreviations: HSDD, hypoactive sexual desire disorder; B-PFSF, Brief Profile of Female Sexual Function (B-PFSF); LASH, laparoscopic supracervical hysterectomy; AH, abdominal hysterectomy; VH, vaginal hysterectomy; LAVH, laparoscopy-assisted vaginal hysterectomy; TLH, total laparoscopic hysterectomy; e.g., for example (exempli gratia).

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Hysterectomy may have negative effects on sexual function as a result of damage to anatomic structures in the pelvis. After removal of the complete uterus, there is sometime a shortening of the vagina, which may lead to dyspareunia and modified sensations [10]. It may be reasonably suspected that disruption of the autonomic nerve supply during removal of the uterus can induce various sexual dysfunctions. There is an influence on vaginal lubrication and sensation. Some authors have reported that hysterectomy induces hormonal changes due to ligation of the fallopian tubes [11,12] and that it is associated with the risk of premature ovarian failure [13]. On the other hand, gynecologic disorders (such as uterine myomas, endometriosis, adenomyosis, or genital prolapse) can also have adverse effects on sexuality, so that removing the uterus might correct the situation and influence positively sexual experience [14].

In 1995, Clarke et al. published a study including 366 women who had undergone abdominal hysterectomy for benign conditions. Three months after hysterectomy, significant reductions in the proportion of women reporting pain, bleeding, discomfort, and lack of desire as reasons for abstaining from sex were observed and significantly more patients described their enjoyment of sex as being very good than before the operation [15]. In 1999, Rhodes et al. published a prospective study of hysterectomy for benign conditions (abdominal, vaginal, and laparoscopy-assisted vaginal hysterectomy) including 1101 patients. The authors reported an increase in sexual activity, with more women reporting orgasm after hysterectomy than before and with an improvement in the low libido rate [10].

Simple hysterectomy, whether performed abdominally, vaginally or laparoscopically, does not adversely affect sexual function [16]. With regard to the potential benefit of leaving the cervix in situ, most authors concluded that leaving it in situ has no effect on sexuality or quality of life [12,17–20]. With specific regard to laparoscopic supracervical hysterectomy, no further information is yet available as to whether women have any benefit with regard to sexual function following hysterectomy.

The aim of the present study was to compare hypoactive sexual desire disorder (HSDD) after five different hysterectomy procedures, using the Brief Profile of Female Sexual Function (B-PFSF) questionnaire, which was developed and validated in order to provide good discrimination between women who have HSDD and those who have not [21]. The study focused on the question of whether women undergoing LASH may benefit from having the cervix left in situ.

#### 2. Patients and methods

#### 2.1. Patients

A total of 1604 records in the hospital's in-patient registry of women with hysterectomies performed in the Department of Obstetrics and Gynecology at Erlangen University Hospital between 2002 and 2007 were identified: 391 women were excluded from further analysis if the hysterectomy was carried out for malignant indications. Six hundred and twenty-three women undergoing simultaneous surgery for pelvic organ prolapse or incontinence, or in whom it was decided intraoperatively to extend the procedure (e.g., with bowel resection in cases of severe endometriosis), were excluded from further analysis in order to eliminate potential confounding factors. A total of 590 women were identified who had undergone hysterectomy alone. In 2008, after a minimum interval of 6 months after the last

surgical procedure, these 590 women were contacted and asked to complete a one-time questionnaire that was mailed to them. The questionnaire included the respondent's age, the time since the hysterectomy was performed, medical history of possible mental disease, current medication, relationship status and the Brief Profile of Female Sexual Function (B-PFSF), which all of the patients had to answer. The number of women in each hysterectomy group between 2002 and 2007 who returned and analyzed questionnaires, age, and median follow-up intervals between surgery and the survey in each group are shown in Table 1. The study, a retrospective two-center cohort study (Canadian Task Force classification II-2) was approved by the Institutional Review Board (IRB) of the University of Erlangen-Nuremberg (IRB-No. 3868). The patients' files were analyzed for details of the type of hysterectomy procedure carried out and whether the ovaries had been removed. Five different types of hysterectomy procedure were identified that were carried out between 2002 and 2007: abdominal hysterectomy (AH), vaginal hysterectomy (VH), laparoscopyassisted vaginal hysterectomy (LAVH), total laparoscopic hysterectomy (TLH), and laparoscopic supracervical hysterectomy (LASH). All of the procedures have been described elsewhere in detail [22-24].

#### 2.2. Brief Profile of Female Sexual Function (B-PFSF)

The B-PFSF consists of seven items (Table 1). Each item is scored on a 6-point Likert scale, from "always" to "never." The item scores are converted (never = 0 points; always = 5 points) so that lower scores indicate poorer sexual function and greater distress. A total score for the B-PFSF is obtained by adding the scores for each item, resulting in a total score ranging from 0 to 35, while a cut-off point of 20 has been found to be clinically relevant for categorizing women as possibly having HSDD or not [21].

#### 2.3. Statistics

Continuous parameters with a normal distribution are presented as means with standard deviation; continuous parameters without a normal distribution are presented as medians;

#### Table 1

Numbers of women in each hysterectomy group between 2002 and 2007, returned and analyzed questionnaires, age, and median follow-up intervals between surgery and the survey in each group.

Surgical procedures between 2002 and 2007 $(n=590)$	AH (n=160)		VH ( <i>n</i> =60)		LAVH ( <i>n</i> = 74)		LASH (n=118)		TLH ( <i>n</i> = 178)		
	n	%	n	%	n	%	n	%	n	%	
Returned questionnaires $(n = 304)$	82	51.3	44	73.3	42	56.8	60	50.8	76	42.7	
Analyzed questionnaires (n = 258)	70	85.4	34	77.3	36	85.7	56	93.3	62	81.6	
Age (mean $\pm$ SD)	$\textbf{54.0} \pm \textbf{7.9}$		55.8	$55.8 \pm 11.5$		$52.5\pm 6.3$		$\textbf{48.8} \pm \textbf{5.9}$		$51.1\pm9.1$	
Follow-up interval (years)	3		3		3		2		2		

AH, abdominal hysterectomy; VH, vaginal hysterectomy; LAVH, laparoscopy-assisted vaginal hysterectomy; LASH, laparoscopic supracervical hysterectomy; SD, standard deviation; TLH, total laparoscopic hysterectomy.

Age comparisons were carried out using one-way ANOVA (P=0.0001). Pairwise post hoc analyses revealed significant differences between the following groups: AH – LASH, P=0.002; VH – LASH, P=0.0003; VH – TLH, P=0.003.

Comparisons of follow-up intervals were carried out using the Kruskal–Wallis test (P < 0.0001). Pairwise post hoc analyses revealed significant differences between the following groups: AH – LASH, P < 0.0001; AH – TLH, P < 0.0001; VH – LASH, P = 0.0008; VH – TLH, P < 0.0001; LAVH – LASH, P = 0.006; LAVH – TLH, P < 0.0001.

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