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# Sexual satisfaction and quality of life in survivors of localized cervical and ovarian cancers following fertility-sparing surgery

Jessica L. Chan [a,b], Joseph Letourneau [a,c], Wael Salem [a], Aylin Pelin Cil [a,d], Sai-Wing Chan [a], Lee-may Chen [a], Mitchell P. Rosen [a,*]

[a] Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California San Francisco School of Medicine, 1635 Divisadero, Suite 601, San Francisco, CA 94115, USA
[b] Department of Obstetrics and Gynecology, University of Pennsylvania, 3701 Market Street, Suite 800, Philadelphia, PA 19104, USA
[c] Department of Obstetrics and Gynecology, University of North Carolina at Chapel Hill, 101 Manning Drive Chapel Hill, NC 27514, USA
[d] Istanbul Memorial Hospital ART and Reproductive Genetics Center, Piyale Pasa Bulvari, 34385 Okmeydani Sisli, Istanbul, Turkey

## HIGHLIGHTS

- Sexual satisfaction/QOL are compared between FSS and comprehensive surgery for localized GYN cancer.
- Sexual dissatisfaction and poor sexual quality of life are prevalent among these survivors.
- FSS may preserve childbearing potential, but does not confer improved sexual satisfaction/QOL.

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## ABSTRACT

*Objective.* To determine if sexual satisfaction and sexual quality of life (QOL) are different in survivors of localized cervical and ovarian cancers who undergo fertility-sparing surgery (FSS) as compared with standard surgery.

*Methods.* 470 survivors of localized cervical and ovarian cancers diagnosed between the ages of 18–40 were recruited from the California Cancer Registry to complete a cross-sectional survey. Validated questionnaires were used to assess sexual satisfaction and sexual QOL.

*Results.* 228 women with localized cervical cancer and 125 with localized ovarian cancer completed the survey. In the cervical cancer group, 92 underwent FSS. Compared with the 84 women who did not undergo FSS (had a hysterectomy, but retained at least one ovary), there was no significant difference in sexual satisfaction or sexual QOL mean scores in women who maintained their uterus (cold-knife cone or trachelectomy), after controlling for age and menopausal status. 82 women with ovarian cancer underwent FSS. Compared with the 39 women that had a bilateral salpingo-oophorectomy, we found no significant differences in sexual satisfaction or sexual QOL in women who maintained at least one ovary (USO or cystectomy), after controlling for age and menopausal status.

*Conclusions.* While FSS may allow for post-treatment fertility, it may not confer a significant benefit with regard to sexual satisfaction or sexual QOL. Thus, the decision to perform FSS should not be dictated based on preservation of sexual functioning.



## 1. Introduction

Improved treatment strategies have led to longer survival of cancer patients, which has made the issues of symptom management and quality of life even more important in the approach to their care [1]. Women who are premenopausal prior to treatment are at high risk for treatment-related sexual dysfunction, premature menopause and infertility [2,3]. Sexual dysfunction has been reported in 30 to 100% of survivors of gynecologic cancer [4]. Those treated for gynecologic cancers may face a higher burden of sexual dysfunction, given the anatomical location of disease and treatment. Sexual function is one of the most important issues for reproductive-age women who are survivors of gynecologic cancer, however an ability to ameliorate ongoing problems with sexual dysfunction has remained elusive [5,6].

While complete surgical removal of pelvic organs had been the historical standard of care for many gynecologic malignancies, reproductive age

* Corresponding author at: 1635 Divisadero, Suite 601, San Francisco, CA 94115, USA.
*E-mail addresses:* jessica.chan@uphs.upenn.edu (J.L. Chan), joe.letourneau@gmail.com (J. Letourneau), salem.wael@gmail.com (W. Salem), aylinpelincil@gmail.com (A.P. Cil), saiwingchanmd@gmail.com (S.-W. Chan), Lee-may.Chen@ucsfmedctr.org (L. Chen), rosenm@obgyn.ucsf.edu (M.P. Rosen).

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women diagnosed with certain localized, low-risk cancers may now be offered fertility-sparing surgery (FSS) to preserve childbearing potential. As FSS spares many of the anatomical structures vital to sexual functioning, it may be hypothesized that in addition to the fertility-sparing benefits, women who undergo FSS may also have preserved sexual functioning. Among younger women who are offered FSS, there are no studies comparing sexual function in women who have undergone FSS compared with traditional, comprehensive surgical treatment. An improved understanding of this potential benefit could be useful in counseling patients who are deciding on FSS.

This study aims to determine if sexual satisfaction and sexual quality of life are different in survivors of localized cervical and ovarian cancers who undergo fertility-sparing surgery as compared with comprehensive surgery. We hypothesize that women who have undergone FSS have better sexual satisfaction and sexual quality of life (QOL) compared with those who underwent comprehensive surgery.

## 2. Materials and methods

We performed a cross-sectional survey study, using the California Cancer Registry (CCR) to sample women across the state. The University of California, San Francisco (UCSF) Committee on Human Research approved all study procedures.

### 2.1. Patients

Reproductive-aged women were sampled. Inclusion criteria included: age 18 to 40 at the time of their cancer diagnosis, diagnosis between 1993 and 2007 (2007 was most recent year CCR data had been available), local disease (SEER stage 1), and cervical or ovarian malignancy. All histologic types of cervical (e.g., squamous, adenocarcinoma) and ovarian cancer (e.g., borderline, germ cell, epithelial) were included. Stage of cancer was determined by the CCR metric of Surveillance Epidemiology and End Results (SEER) staging index. The SEER staging is an indexed approach within the cancer registry to stratify advancement of disease: in situ, localized, regional by direct extension, regional by lymph nodes, regional by direct extension and lymph nodes and metastatic disease. Scores range from 0 (in-situ/precancerous) to 7 (metastatic), with a score of 1 signifying local disease. For this study, patients with localized, early stage cervical and ovarian cancers with a SEER stage of 1 ("confined to organ of origin") who could be treated with FSS were included. This metric was used as a proxy for clinical stage I cancers. Since cervical cancer is clinically staged, some women may have had IA1 or IA2 or IB1 disease diagnosed prior to surgery and been eligible for FSS, and had positive local (i.e. not distant) lymph node involvement at the time of surgery. These women would likely have gone on to chemotherapy with or without external beam radiation and/or vaginal brachytherapy. These women were referred to as "regional by lymph nodes" in the cancer registry and were not included in our study. Patients were excluded if they had non-localized disease (SEER score >1). Exclusion criteria included: age not 18 to 40 years old at diagnosis, SEER stage not equal to 1, or history of pelvic radiation.

### 2.2. Recruitment

Women were contacted between January 2010 and June 2013. A contact letter was sent to potential participants, explaining the purpose of the survey, the source of the individual's personal contact information (the CCR), and a link to the online survey. The option of opting out of the survey and further contact was provided. A second mailing was then sent to participants who had not yet responded that included a printed survey, consent form, a postage-paid return envelope and a refusal postcard. Women were asked to complete and return the printed consent form and survey by mail. Women who did not reply within one month received a reminder phone call. Those who had not replied within two weeks of the reminder call were sent a reminder postcard with a link to the electronic survey.

We recruited as many patients as possible within the study period. Based on an alpha of 0.05, a power of 0.8, an expected standard deviation of 3, and a clinically significant difference of 2, we would need approximately 36 patients in each comparator group to detect a difference in the included WHO sexual QoL scale (the scale is described below)[10]. Regarding the dichotomous outcome of sexual satisfaction, using an alpha of 0.05, a power of 0.8, approximately 85 respondents would be needed in each comparator group to detect a change from 50% satisfaction to 75% satisfaction.

### 2.3. Survey

The survey was created at UCSF and was assessed for readability and content validity – the extent to which our survey accurately assessed reproductive health history, quality of life and satisfaction – by two independent experts in survey methodology. It was then piloted on 20 patients from the UCSF Center for Reproductive Health for content and readability. The final survey included questions regarding demographic information, past obstetric and gynecologic history, menopausal symptoms, cancer type and treatment, fertility-preservation actions, and post-treatment quality of life and satisfaction.

The survey was made available in both English and Spanish. A professional translation company (American Language Services, Los Angeles, CA) translated the study materials into Spanish using 2 independent translators. A third bilingual individual checked translations. Both paper and electronic versions of the survey were available to participants. Paper surveys were created using Cardiff Teleform (Highland Park, IL). Patients could also complete the survey online through Surveymonkey.com (LLC, Palo Alto, CA). Validated questionnaires (as described below) were used to assess sexual satisfaction and sexual quality of life. Subscales were used as a part of a larger survey about reproductive health outcomes in gynecologic cancer survivors.

### 2.4. Assessment of sexual satisfaction

The Satisfaction With Life Scale [7] was used to assess sexual satisfaction using a Likert-type scale ("Very dissatisfied," "Dissatisfied," "Neither satisfied nor dissatisfied," "Satisfied," and "Very satisfied"), with questions such as "How satisfied are you with your sex life?" For the purpose of statistical analysis, those who responded "Satisfied" and "Very satisfied" were considered satisfied with their sex lives and those who responded "Very dissatisfied" to "Neither satisfied nor dissatisfied" were considered not satisfied with their sex lives.

### 2.5. Assessment of sexual quality of life

The World Health Organization Quality of Life Assessment (WHOQOL-BREF) [8,9] was used to assess sexual QOL. This validated survey instrument contains a domain for social health, which includes facets related to personal relationships, social support, and sexual activity. This survey instrument has three questions that comprise the social health domain, which was used as a proxy assessment of sexual QOL: 1) How satisfied are you with your abilities? 2) How satisfied are you with your personal relationships? 3) How satisfied are you with your sex life? Respondents replied to these with a Likert-type scale from 1 ("very dissatisfied") to 5 ("very satisfied"), with higher scores reflecting higher sexual QOL. A numerical average was taken and multiplied by four to give the transformed score of four to twenty for the social domain of the WHOQOL-BREF for the purpose of statistical analysis and comparison with scores generated from other WHOQOL-BREF QOL studies. Previous studies have indicated that a 1-point to 2-point difference in the score of each domain of the WHOQOL-BREF represents a clinically significant difference [10].