Oregon Health & Science University
School of Medicine

Scholarly Projects Final Report

Title *(Must match poster title; include key words in the title to improve electronic search capabilities.)*
Evaluation of sexual health in patients with gynecological, breast, and pelvic malignancies

Student Investigator's Name
Jillian Phillips

Date of Submission *(mm/dd/yyyy)*
3/13/23

Graduation Year
2023

Project Course *(Indicate whether the project was conducted in the Scholarly Projects Curriculum; Physician Scientist Experience; Combined Degree Program [MD/MPH, MD/PhD]; or other course.)*
Scholarly Projects Curriculum

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Scholarly Project Final Report

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Project/Research Question
What is the impact of both malignancy and treatment plans on sexual function in female cancer patients and how effective are current strategies utilized by the radiation oncology department at OHSU?

Type of Project *(Best description of your project; e.g., research study, quality improvement project, engineering project, etc.)*
Research study

Key words *(4-10 words describing key aspects of your project)*
Sexual health of female cancer patients

Meeting Presentations
If your project was presented at a meeting besides the OHSU Capstone, please provide the meeting(s) name, location, date, and presentation format below (poster vs. podium presentation or other).

Publications *(Abstract, article, other)*
If your project was published, please provide reference(s) below in JAMA style.

Submission to Archive
Final reports will be archived in a central library to benefit other students and colleagues. Describe any restrictions below (e.g., hold until publication of article on a specific date).

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Next Steps
What are possible next steps that would build upon the results of this project? Could any data or tools resulting from the project have the potential to be used to answer new research questions by future medical students?
Increased enrollment

Please follow the link below and complete the archival process for your Project in addition to submitting your final report.

https://ohsu.ca1.qualtrics.com/jfe/form/SV_3ls2z8V0goKiHZP

Student's Signature/Date *(Electronic signatures on this form are acceptable.)*
This report describes work that I conducted in the Scholarly Projects Curriculum or alternative academic program at the OHSU School of Medicine. By typing my signature below, I attest to its authenticity and originality and agree to submit it to the Archive.

Mentor's Approval *(Signature/date)*

Scholarly Project Final Report

Report*: Information in the report should be consistent with the poster, but could include additional material. Insert text in the following sections targeting 1500-3000 words overall; include key figures and tables. Use Calibri 11-point font, single spaced and 1-inch margin; follow JAMA style conventions as detailed in the full instructions.*

Introduction *(≥250 words)*

Advancements in cancer treatment options have led to increased rates of survival, extended lifespans and a greater focus on factors that improve quality of life. One such factor that has been shown to play a significant role in the quality of life and overall wellbeing of cancer patients is their sexual health[1,2]. Sexual health represents an important yet understudied and undervalued component of patient health. As a result of malignancy as well as treatment options such as chemotherapy and radiation, cancer patients experience a high rate of sexual dysfunction and morbidity[3]. However, numerous studies have shown that providers do not consistently address this issue during routine cancer care[4]. Neglecting to educate patients about the adverse effects on sexual function due to both their care and their condition is detrimental to patient health and the patient-provider relationship. Current literature lacks materials that explain the importance of patient education and that outline various types of sexual health interventions and their effectiveness. It is essential to bridge this gap and understand the pervasiveness of sexual dysfunction and morbidity in cancer patients as well as improve current practices surrounding sexual health interventions. In order to address these issues, a study was conducted at Oregon Health & Science University (OHSU) that examined the impact of both malignancy and treatment plans on sexual function in female cancer patients, specifically those with gynecological, breast, and pelvic malignancies. Additionally, the study assessed the effectiveness of current strategies utilized by the radiation oncology department to combat these issues and provide sexual education.

Methods *(≥250 words)*

The study was a single arm prospective study utilizing standardized surveys and questionnaires to assess sexual health in adult female cancer patients. Participants were to be followed for a 5-year period and evaluated using post-interventional surveys. Participants included in the study were adult, female patients ages 18-89 with gynecological, breast, and/or pelvic cancer in the departments of radiation medicine, gynecological oncology, and sexual health clinics at OHSU. Day 1 of the study began after participants have given informed consent and underwent screening, baseline evaluations and the completion of a pre-intervention survey during the clinical appointment. After these evaluations, interventions customized to each individual participant were suggested and explained by the provider. These interventions included psychosocial support, talk therapy, and medications. Follow up over the next 5 years was to take place at clinical appointments. Efficacy of the proposed interventions was to be evaluated using questionnaires and surveys. The surveys utilized were the Female Sexual Function Index (FSFI) and the PROMIS instruments, two separate NIH surveys for assessing sexual function and satisfaction in cancer populations.[5,6]. Scores were compiled for the surveys for each participant at baseline and then at various time points throughout the 5-year enrollment period. For the FSFI, total score ranged from 2 to 36, and higher score reflected better sexual function. A value less than 26.55 was diagnostic of FSD. The FSFI score was calculated using the MDApp. The PROMIS was scored using the PROMIS scoring manual (http://www.healthmeasures.net/images/PROMIS/manuals/PROMIS_Sexual_Function_and_Satisfaction_Measures_User_Manual_v1.0_and_v2.0.pdf). PROMIS scores were expressed as T-scores with a mean of 50 and a standard deviation of 10. The PROMIS score was invalid for any fields that were filled out as not applicable. At the time of analysis, three participants had been enrolled and had completed baseline questionnaires.

Results *(≥500 words)*

At the time of analysis, three patients were enrolled. All patients identified as female and were between the ages of 36 and 71. Two patients identified a sexual orientation towards males and one identified their orientation toward females. As seen in Figure 1, two out of the three participants were diagnosed with gynecological cancer. The other was diagnosed with breast cancer. One of the three had received treatment in the past for sexual health concerns, which included talk therapy, estrogen creams, lubricants, dilators, and lidocaine. The other two participants had not received treatment for sexual health concerns in the past.

ID	Type of Cancer	Previous Tx
1	Gynecological	Yes
2	Gynecological	No
3	Breast	No

Figure 1. Participant's cancer type and history of receiving previous treatment for sexual health concerns. Treatment options included psychosocial support, talk therapy, estrogen creams, lubricants, dilators, and/or other options.

All participants completed baseline surveys on the first day of enrollment (Figure 2). Two out of three participants scored less than 26.55 on the FSFI (24 and 2.6), which is the threshold for determining sexual dysfunction. For the PROMIS score, two of the three participants scored above the mean of 50, while the other was unable to receive a score due to various fields entered as not "applicable". Based on the FSFI, 67% of the participants were categorized as having sexual dysfunction compared to the general population. Based on the PROMIS score, 67% of the participants were characterized as having increased sexual function and satisfaction (54.5, 2.2; 58.6, 2.2) as compared to the reference population, each with a standard error of 2.2. Looking at both the FSFI and PROMIS score, only one patient (ID 2) was categorized as not having sexual dysfunction (via the FSFI) and as having greater than average sexual satisfaction (via PROMIS). Patient ID 1 and patient ID 3 were both categorized as having sexual dysfunction (via the FSFI), but ID 1 was characterized as having greater than average sexual satisfaction (via PROMIS).

ID	FSFI Score	PROMIS Score	SE
1	24	54.5	2.2
2	29.6	58.6	2.2
3	2.6	---	---

Figure 2. Measures of sexual function and satisfaction in females with gynecological, breast and/or pelvic malignancies. FSFI is the Female Sexual Function Index survey and categorizes FSFI <26.55 as female sexual dysfunction. The PROMIS score is a T-score with mean of 50 and standard deviation of 10.

Discussion *(≥500 words)*

The objectives of this study were three-fold: to determine the prevalence of sexual dysfunction in patients with gynecological, breast, and/or pelvic malignancies, to determine the primary causes of sexual dysfunction in patients with gynecological, breast, and/or pelvic malignancies and to determine the efficacy of sexual health interventions utilized by the radiation oncology department. Only the first objective was addressed in this analysis, with the prevalence of sexual dysfunction calculated at 67%. However, due to the small sample size of the current analysis, it is worth noting that there were no findings

of statistical significance. Additionally, surveys were only administered at baseline which prevented any analysis of change over time or evaluation of the efficacy of various interventions.

Despite the challenges and limitations of this study, it represents a promising start to the project that will continue with future enrollment. The study is one of the first in the literature to combine the FSFI with the PROMIS surveys, allowing for increased understanding and characterization of sexual dysfunction in reference to both the general population (via the FSFI) and a cancer specific population (via PROMIS). However, the use of the PROMIS instruments does pose a challenge when scoring, as any field entered as not applicable negates the total score. Because of this, a certain number of participants will be unable to be assessed. This challenge offers an additional advantage to utilizing the FSFI in addition to PROMIS as it ensures that each participant receives at least one score.

The study is also one of the first to examine the prevalence of sexual dysfunction in females in multiple types of cancer as opposed to just one. Prior studies have evaluated sexual function in patients with endometrial, breast, and other cancer types in females, but have not examined the overall impact for female cancer patients at large. While the body of literature is growing around these topics, there is a general paucity in the literature regarding female sexual dysfunction, especially in comparison to the amount of literature focusing on sexual dysfunction in male cancer patients. Both topics are of extreme importance given the impact of sexual health on overall wellbeing and quality of life, and both deserve robust investigations and evaluations. The development of the FSFI and PROMIS instruments, scoring systems both specifically for females, is a promising step towards further characterizing sexual dysfunction in cancer patients and understanding the tools and strategies necessary for improving function in this population.

Conclusions *(2-3 summary sentences)*

Sexual health has been shown to play a significant role in the quality of life and overall wellbeing of cancer patients. While this study is still in its early stages and requires additional enrollment, it provides a promising start towards further characterization of female sexual dysfunction and increased understanding of the necessary strategies for combating this issue.

References *(JAMA style format)*

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3. Lindau, S. T., Gavrilova, N., & Anderson, D. (2007). Sexual morbidity in very long term survivors of vaginal and cervical cancer: A comparison to national norms. *Gynecologic Oncology*, *106*(2), 413–418. https://doi.org/10.1016/j.ygyno.2007.05.017
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5. 6. Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, Ferguson D, D'Agostino R Jr. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther. 2000; 26(2):191-208.

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