

# Underreporting of Fatigue in Gynecologic Oncology Patients

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## Introduction

Fatigue is one of the most commonly reported symptoms among cancer patients, and its effects are well known to have a significant impact on quality of life. Countless studies of cancer patients have noted fatigue to be one of the longest lasting and most disruptive symptoms. The National Cancer Network (NCCN) defines cancer-related fatigue (CRF) as a persistent subjective sense of physical, emotional, and/or cognitive tiredness related to cancer or cancer treatment that is not proportional to activity level and significantly interferes with usual functioning.

The pathogenesis of CRF is complex and poorly understood making treatment modalities limited. However, the underreporting of fatigue symptoms is arguably a more serious issue in the attempt to ameliorate the effects of CRF. In a study of >500 patients, 52% (281 of 538) of participants who had experienced at least some level of fatigue never reported the issue to their hospital doctor. Multiple studies report that between 50-74% of patients are under the impression fatigue is an untreatable symptom and is a normal part of cancer and the subsequent treatment. Barriers to the recognition and treatment of fatigue can be subcategorized into three groupings: patient, healthcare provider, and system barriers<sup>5</sup>. A further description and examples within these categories can be found in Table 1.

This study will focus specifically on the reporting of CRF in gynecologic oncology patients. CRF has a staggering prevalence and severity in patients with gynecologic cancer. Due to advancements in screening methods and treatments, patients with gynecologic cancers are living longer yet still suffer from the debilitating effects of fatigue. In a study of 98 ovarian cancer survivors, 32 women (32.7%) were diagnosed with fatigue after being treatment free for at least 6 months. The heterogeneity of most studies involving CRF makes it difficult to find correlations to a specific type of cancer and therefore customize treatment options. Considering gynecologic oncology encompasses a unique and diverse patient population (including young women who are not normally at risk for other types of cancer), it is essential that clear distinctions be made as to what factors deter this specific group from reporting fatigue symptoms. The purpose of this study is to identify clinical, psychosocial, and lifestyle characteristics that may be associated with the underreporting of fatigue, specifically in gynecologic oncology patients

**Table 1. Barriers to fatigue relief and management**

Category	Barriers
Patient	Wariness regarding more pharmacologic treatment Thinking CRF is an unavoidable consequence of cancer Fear about fatigue as a symptom of disease progression Desire to be a good patient Fear of distracting their doctor Lack of awareness of non-medication interventions Lack of communication
Healthcare Provider	Failure to initiate screening protocols and/or recognize patient barriers Lack of evidence for effective treatment modalities
System	Reimbursement and regulatory constraints Lack of referrals to specialists and supportive care services

## Methods

### Procedures

The design of this study is a cross-sectional survey. 89 subjects were recruited from three outpatient sites (St. Joseph’s Hospital and Medical Center, The University of Arizona Cancer Center – Phoenix, and The University of Arizona Cancer Center – Tucson), and surveys were administered in person at the above sites. Initial chart review occurred to ascertain information regarding type of malignancy, status treatment, current hemoglobin level, BMI, and age. Eligible subjects met the following inclusion criteria: (a) women age ≥18 years old with a known ovarian, uterine, cervical, vaginal, vulvar, or primary peritoneal cancer; (b) Currently attending physician’s office hours and/or undergoing chemotherapy at one of the above listed centers. Patients receiving chemotherapy agents other than Platinum or Taxane-based were excluded from this study. Informed consent was obtained prior to data collection. All data was de-identified prior to being entered into a database for statistical analysis.

### Measurements

The survey included: (a) self reported age, gender, weight/height, language spoken at home, cancer type/stage, zip code, and treatment information; (b) 1 question regarding support group participation; (c) exercise level; (d) servings of fruits/vegetables per day; (e) Functional Assessment of Chronic Illness Therapy – Fatigue (FACIT-F); (f) Interpersonal Support Evaluation List – 12 (ISEL-12); (g) Fatigue Management Barriers Questionnaire (FMBQ); (h) Functional Assessment of Cancer Therapy – General (FACT-G); (i) Female Genitourinary Pain Index (GUPI).

This project focuses on the FMBQ questionnaire. The FMBQ assess a patient’s level of concern with regards to perceived barriers to fatigue management and treatment. There are 28 self-reported items with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The survey has been validated and shows good internal consistency (Cronbach’s  $\alpha$  coefficient of 0.88).

## Results

This study included 89 women with an age range of 31-90 years old. The largest age group represent was women ages 51-60 making up 35.96% of the sample ( $n=32$ ).

Kruskal-Wallis equality of population rank test was used to determine whether the difference in the mean FMBQ scores among categories was statistically significant. Table 2 lists the mean FMBQ scores by each category and reports statistical significance based on p-values.

Linear regression analysis was performed to find associations between FMBQ scores and patient characteristics. Detailed results from the linear regression analysis can be found in Table 3.

In summary, different chemotherapy cycles and FMBQ score were statistically related. Additionally, time from last treatment, a patient’s weight, and the stage of cancer were statistically significant with regards to FMBQ score.

## Discussion and Conclusions

The intent of this survey was to find relationships between patient characteristics and FMBQ scores to further understand why patients with gynecologic cancer may underreport their fatigue symptoms. Differences in mean FMBQ scores based on a patient’s chemotherapy cycle (first, middle, or last) were found to be statistically significant. ( $p=0.0426$ ). Higher scores were reported during the first chemotherapy cycle (mean = 89, SD = 2.83), which translates to patients being aware of the most barriers to fatigue management during this time frame. This information could potentially guide clinicians on when it would be most advantageous to screen patients for fatigue.

Additionally, both weight and stage number/type were significantly correlated with increasing FMBQ scores. In previous studies, religious affiliation, type of cancer, and treatment setting were the factors significantly associated with concerns about reporting fatigue. This new data suggests there are multiple other confounding factors that affect the underreporting of fatigue. With regards to weight, the data may indicate that patients are attributing their fatigue to their weight rather than a cancer related cause. This may deter patients from discussing their concerns with a physician. Additionally, it was predicted that FMBQ scores would increase by ten points for each progression into a more advanced stage. This result reiterates the fact that healthcare providers need to be educating patient on potential options for fatigue management, even in the latter stages of disease. Some limitations to this study include a small sample size and the inclusion of patients with minimal fatigue symptoms.

There are few studies that have investigated specific clinical correlates that may be associated with the underreporting of fatigue symptoms. Additionally, most studies include multiple types of cancer making specific correlations less applicable to gynecologic oncology patients. This study is unique in that it focused on a very distinct cancer population with known high levels of fatigue that is notoriously underreported. In the future, a longitudinal study of gynecological oncology patients would be beneficial to see how fatigue levels differ throughout the course of the disease.

**Table 2. Correlation between clinical characteristics and mean FMBQ scores (n=89)**

Clinical Characteristics	Mean FMBQ Score (SD)	p – value*
<b>Treatment</b>		$p = 0.3081$
Chemo	66.13 (15.63)	
Chemo + Radiation	48.25 (25.98)	
None	61.58 (22.10)	
<b>Chemotherapy Cycle</b>		$p = 0.0426$
First	89.00 (2.83)	
Middle	62.37 (14.63)	
Last	76.50 (7.78)	
<b>Last Treatment</b>		$p = 0.3183$
<1 month	58.20 (38.18)	
2-6 months	68.57 (10.11)	
6-12 months	67.50 (9.93)	
13-24 months	72.67 (5.03)	
>2 years	50.65 (27.5)	
<b>Surgery</b>		$p = 0.4390$
Yes	63.22 (19.23)	
No	53.89 (28.64)	
<b>Disease Status</b>		$p = 0.5495$
1 <sup>st</sup> Chemotherapy	67.75 (12.13)	
Remission	59.20 (22.72)	
Recurrent	65.48 (16.22)	
<b>Stage Number</b>		$p = 0.1528$
I	62.15 (18.71)	
II	51.29 (11.69)	
III	62.58 (19.12)	
IV	61.88 (22.90)	
<b>Stage Type</b>		$p = 0.5196$
Early	63.40 (28.19)	
Advanced	75.57 (8.20)	
Metastatic	72.17 (10.05)	
Unknown	61.81 (29.04)	
<b>Support Group</b>		$p = 0.7979$
Yes	62.50 (15.22)	
No	62.12 (21.50)	
<b>Exercise</b>		$p = 0.8316$
Daily	63.00 (17.19)	
Weekly	60.37 (23.08)	
Never	62.00 (23.03)	
<b>Diet</b>		$p = 0.7078$
<1 serving*	69.75 (8.50)	
1-2 servings	61.55 (21.68)	
3-5 servings	60.79 (19.06)	
>5 servings	75.00 (23.26)	

\*Kruskal-Wallis equality-of-population rank test used  
\*Servings are of fruits/vegetables per day  
Abbreviations: FMBQ, Fatigue Management Barriers Questionnaire; SD, standard deviation

**Table 3. Summary of statistically significant variables of multiple regression analysis**

Characteristic	B	SE (B)	t	p >  t	[95% CI]
Last Treatment	-4.430	2.276	-1.95	0.078	[-9.440, 0.581]
Weight	0.189	0.0712	2.64	0.023	[0.032, 0.347]
Stage Number	10.850	4.336	2.50	0.029	[1.307, 20.393]
Stage Type	-26.050	5.549	-4.69	0.001	[-38.264, -13.835]

Note.  $R^2 = 0.7024$  ( $p = 0.0062$ )  
Abbreviations: B, regression coefficient; SE (B), standard error; t, t statistic; p, p-value; CI, confidence interval

## Acknowledgements

I would like to thank my mentor Dr. Dana Chase for the opportunity to work on this project and for all of the resources she provided me. Additionally, I would like to thank Michael Halpern for collecting surveys at The University of Arizona Cancer Center in Tucson. And finally, I would like to thank Paul Kang for his guidance and assistance with the statistical analysis.