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EVALUATING THE BURDEN OF FATIGUE ON HEALTH AND WELL-BEING IN GYNAECOLOGICAL CANCER SURVIVORS: A CROSS-SECTIONAL PUBLIC HEALTH ANALYSIS

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ABSTRACT

Background

In Pakistan, as cancer treatment options continue to evolve, more people are surviving the disease. However, many survivors face long-term challenges, including persistent side effects that can last for years after treatment. Cancer-related fatigue is one of the most common side effect reported by survivors, regardless of the type or stage of cancer they had. This ongoing exhaustion can significantly impact their daily lives and overall well-being.

Objective: This study investigated cancer-related fatigue in gynaecological cancer survivors, focusing on its prevalence and relationship to distress, quality of life, demographics and treatment factors.

Methodology: The cross sectional study was conducted in Abbasi Shaheed hospital, Karachi from July 2023 to June 2024, using a detail short form (SF-36) questionnaire. The study involved 120 women treated for gynaecological cancers, who completed questionnaires assessing fatigue, psychological distress, health-related quality of life and demographics. Additionally, their medical records were reviewed to gather information on disease and treatment characteristics.

Results: The study revealed that cancer-related fatigue affected 53% of women treated for gynecological cancers, with cervical cancer patients experiencing it most frequently followed by ovarian cancer patients. Younger women were more likely to report fatigue than older women. However, when age was taken into account, the type of cancer had minimal impact on fatigue risk. Women with fatigue reported higher levels of anxiety and depression and their quality of life was also affected, as shown by lower scores in various SF-36 domains.

Conclusion: The study highlighted the need for routine screening, patient education and effective symptom management for fatigue. This should be a standard part of treatment and follow-up care,

addressing both the physical and psychological aspects of fatigue to provide comprehensive support.

Keywords: anxiety, depression, fatigue, gynaecological cancers, quality of life.

INTRODUCTION

Improvements in cancer treatment have significantly increased survival rates, resulting in a growing population of cancer survivors [1]. However, many survivors experience long-term side effects, with cancer-related fatigue being one of the most prevalent. Cancer-related fatigue is a persistent and debilitating condition characterized by prolonged tiredness or exhaustion, affecting around one-third of patients long after treatment has ended and significantly impairing their quality of life [2,3]. Women with gynecological cancers often experience cancer-related fatigue, a finding consistently reported in various studies. According to research, fatigue ranks as one of the top unmet needs for these patients, affecting their quality of life [4,5]. Studies have shown that fatigue persists in 17-33% of gynecological cancer survivors even three to eight years after diagnosis, highlighting the need for ongoing support and care [6].

Fatigue significantly impacts the quality of life for cancer patients, limiting their ability to engage in daily activities and fulfill previous roles. Studies have shown that cancer survivors, including those with ovarian and cervical cancer, experience chronic fatigue, anxiety and decreased quality of life [7,8]. Research found that 22% of ovarian cancer survivors reported chronic fatigue, compared to 12% in the general population [9]. Similarly, 30% of cervical cancer survivors treated with radiotherapy experienced cancer-related fatigue years after treatment. These findings highlight the need for addressing fatigue in cancer care [10]. Research has shown that fatigue is a significant concern for patients with ovarian and cervical cancer, impacting their quality of life[10]. A study of ovarian cancer patients found that 33% reported fatigue, which was associated with lower quality of life and higher scores of anxieties and depression [11]. Furthermore, evidence suggests that the type and combination of treatments can influence the severity of fatigue and quality of life. For instance, studies have found that radiotherapy and chemotherapy can lead to increased fatigue and treatment-related side effects, while multiple therapies may result in greater impairments in quality of life [12-14]. Research has shown a clear link between fatigue and psychological distress in cancer patients. Studies have consistently found that cancer-related fatigue is associated with higher levels of anxiety and depression. This connection emphasizes the need to address both psychological and symptom distress in managing cancer-related fatigue. Women with cervical cancer who experience fatigue, for example, often report lower quality of life, increased anxiety and depression, and greater physical impairment[15,16].There's a lack of information about how women with different gynecological cancers and treatment types experience symptoms like fatigue and its impact on their quality of life. Given fatigue's significant effect on women's well-being, more insight is needed to understand its impact on quality of life in these cancer groups.

This study's main goal is to investigate how common cancer-related fatigue is in women with various gynecological cancers and its connection to anxiety, depression, quality of life, demographic factors and treatment details.

Objective of Study

This study investigate the prevalence of cancer-related fatigue in women treated for various types of gynaecological cancers, exploring its relationship with distress, health-related quality of life, demographic factors and treatment characteristics, to better understand the impact of fatigue on survivors and inform potential interventions.

METHODOLOGY

A total of 120 women participated in the study which was conducted at Abbasi Shaheed Hospital, Karachi, from July 2023 to June 2024 .This cross sectional study involved women who had to have completed treatment for gynecological cancer with curative intent, be over 18 years old, have sufficient physical functioning and no significant memory problems.

The study assessed various aspects of the women's experiences, including fatigue, anxiety, depression, quality of life, coping and sexuality, using standardized psychometric instruments. Additionally, demographic information such as age, education level and employment status was collected. Treatment details were obtained from medical records and work ability was evaluated by asking about difficulties in managing their job after returning from sick leave. Physical activity levels were also assessed through a question about the frequency of exercise that caused sweating or breathlessness.

The study used several assessment tools to measure the women's experiences. The short form (SF-36) questionnaire measured general health perception, covering physical and mental health domains.The Fatigue Questionnaire (FQ) evaluated fatigue intensity, with higher scores indicating more fatigue. The Hospital Anxiety and Depression Scale (HADS) assessed symptoms of anxiety and depression, with scores of 8 or greater indicating potential cases.

Ethical considerations

The study was approved by the institutional Review board of Abbasi shaheed hospital.

Statistical analysis

The study's data analysis was performed using SPSS version 22. The analysis involved cross-tabulation and Fisher's exact test for categorical data while two-sample t-test was used for continuous data with results reported as 95% confidence intervals. Logistic regression analysis was employed to examine the relationship between chronic fatigue and various explanatory variables, with results presented as odds ratios, 95% confidence intervals, and p-values.

RESULTS

The study included 120 women with an average age of 56 who had various types of gynecological cancers. The majority of the women (78%) were married or cohabiting, and most (88%) had completed high school or university/college education. In terms of employment status, 26% were retired, 52% were employed and 5% were disabled, providing a snapshot of the demographic characteristics of the sample. The participants were, on average, 16 months post-treatment and no significant relationship was found between fatigue and time since treatment. Most women (93%) underwent surgery, while 49% received chemotherapy and 16% received radiation. About two-thirds (69%) had early-stage disease. The sample included women with various gynecological cancers, with 46% having uterine cancer, 27% ovarian cancer and others with different types. Women with uterine cancer were mainly treated with surgery, while those with ovarian cancer received more extensive treatment.

The study's participants had various types of gynecological cancers with distinct treatment patterns. Women with uterine cancer, who made up 46% of the sample, were mostly treated with surgery, and 28% also received chemotherapy. In contrast, those with ovarian cancer (27% of the sample) were often treated with surgery and adjuvant chemotherapy (81%). Women with cervical cancer (25% of the sample) received a range of treatments, including surgery (76%), chemotherapy (52%), and radiotherapy (45%), with a notable proportion receiving radiation compared to the other cancer groups. A small group of women with vulval cancer (3% of the sample) were primarily treated with surgery.

The study revealed distinct differences between women experiencing fatigue and those who were not. Fatigued women were on average eight years younger than their non-fatigued counterparts and they also reported higher incomes. However, other socio-demographic factors such as marital status, educational level and employment status did not show significant differences between the two groups. In terms of cancer diagnosis, fatigue was reported by 53% of the women, with a higher prevalence among those diagnosed with cervical cancer (69%) and ovarian cancer (62%). Notably, the type of treatment received, including surgery, radiation and chemotherapy, did not have a significant impact on the occurrence of fatigue. Similarly, the time elapsed since diagnosis and the

stage of cancer at diagnosis did not significantly influence fatigue levels. The quality of life assessment using the SF-36 tool showed that fatigued women scored lower across all eight domains compared to non-fatigued women, indicating a broader impact of fatigue on their overall well-being.

Table 1: Distribution of patient characteristics and treatment-related factors in fatigued and nonfatigued gynaecological cancers survivors.

	Non Fatigued (*n* = 120)	**Fatigued (*n* = 64)**	***p*-value**	**Total**
Age at survey time mean, SD (95% CI)	61, 12 (57·4–63·8)	53, 12 (49·8–56·0)	<0·001	**56, 13 (54·2–58·8)**
Civil status, *n* (%) Paired relation	44 (80)	49 (77)	0·68	**93 (78)**
Single	5 (9)	5 (8)		**10 (8)**
Divorced	2 (4)	6 (9)		**8 (7)**
Widow	4 (7)	4 (6)		**8 (7)**
Regular physical activity, *n* (%) 7 times a week or more	4 (7)	2 (3)	0·03	**6 (5)**
4–6 times a week	11 (20)	12 (19)		**23 (20)**
2–3 times a week	26 (48)	16 (26)		**42 (36)**
Once a week	8 (15)	21 (34)		**29 (25)**
Less than once a week	5 (9)	11 (18)		**16 (14)**
Employment status, *n* (%)			0·09	
Employed	24 (43)	38 (59)		**62 (52)**
Retired	21 (38)	10 (16)		**31 (26)**
Unemployed	6 (11)	8 (12)		**14 (12)**
Disability pension	3 (5)	3 (5)		**6 (5)**
Housewife	2 (4)	3 (5)		**5 (4)**
Other	0 (0)	2 (3)		**2 (2)**
Time from diagnosis to survey (months)	17·4, 8·5 (15·1–19·7)	15·5, 9·6 (13·0–17·6)	0·25	**16·3, 9·1 (14·7–18·0)**
mean, SD (95% CI)				
Diagnosis, *n* (%) Uterine	32 (58)	22 (35)	0·04	**54 (46)**
Ovarian	12 (22)	20 (32)		**32 (27)**
Cervical	9 (16)	20 (32)		**29 (25)**
Vulva	2 (4)	1 (2)		**3 (3)**
FIGO stage, *n* (%)			0·15	
I	42 (78)	36 (61)		**78 (69)**
II	4 (7)	8 (14)		**12 (11)**
III	6 (11)	14 (24)		**20 (18)**
IV	2 (4)	1 (2)		**3 (3)**
Educational level, *n* (%)			0·71	
Elementary school	8 (15)	6 (9)		**14 (12)**
Secondary school	23 (42)	29 (45)		**52 (44)**
College/university	24 (44)	29 (45)		**53 (45)**

Treatment modalities, *n* (%)			0·63	
Surgery only	30 (55)	26 (42)		**56 (48)**
Surgery and chemotherapy	18 (33)	22 (35)		**40 (34)**
Surgery, chemotherapy and radiation	4 (7)	5 (8)		**9 (8)**
Chemotherapy and radiation	2 (4)	4 (6)		**6 (5)**
Surgery and radiation	1 (2)	3 (5)		**4 (3)**
Chemotherapy only	**0 (0)**	**2 (3)**		**2 (2)**

The study found that 41% of women who returned to paid work reported difficulty performing their job after sick leave, with fatigued women being more affected. About 26% reduced their working hours due to their illness and 18% received work accommodations. However, the relationship between fatigue and type of cancer diagnosis disappeared when adjusted for age and anxiety/depression levels, suggesting that age may be a contributing factor to fatigue rather than the type of cancer itself.

Table 2: Mean values and differences for the self-report scale SF-36 in fatigued and non- fatigued gynecological patients with cancer. Positive differences indicate worse health for women with fatigue

	Non Fatigue Mean, SD, *n* (95% CI	Fatigue Mean, SD, *n* (95% CI)	*p*-value	Difference(95%CI)
Physical function	89, 12, 56 (85–92)	83, 15, 63 (79–87)	0·02	**6 (0·9–10·6)**
Role physical	81, 34, 56 (72–90)	48, 40, 61 (38–58)	<0·001	**33 (19·2–46·2)**
Bodily pain	81, 24, 56 (74–87)	71, 27, 64 (64–78)	0·04	**10 (0·4–18·7)**
General health	80, 16, 42 (75–85)	68, 20, 47 (62–74)	0·002	**12 (4·3–19·3)**
Vitality	70, 17, 55 (65–74)	43, 19, 64 (39–48)	<0·001	**27 (20·3–33·1)**
Social function	94, 15, 56 (90–98)	74, 22, 64 (68–79)	<0·001	**20 (13·4–26·8)**
Role emotional	91, 22, 56 (85–97)	62, 39, 61 (52–72)	<0·001	**29 (17·8–40·9)**
Mental health	**84, 12, 55 (81–87)**	**68, 18, 64 (64–72)**	**<0·001**	**16 (10·5–21·5)**

Table 3 Mean values and differences for the self-report scale Hospital Anxiety and Depression Scale (HADS) in fatigued and nonfatigued gynaecological patients with cancer. Positive differences indicate more anxiety/depression for women with fatigue.

	Non fatigue Mean, SD, *n* (95% CI)	**Fatigue Mean, SD, *n* (95% CI)**	***p*-value**	**Difference (95% CI)**
HADS anxiety	3·5, 2·9, 56 (2·8–4·3)	6·4, 3·6, 63 (7·3–5·5)	<0·001	**2·9 (1·7–4·0)**
HADS depression	1·6, 2, 56 (1·0–2·1)	4·7, 3·7, 64 (5·6–3·7)	<0·001	**3·1 (2·1–4·2)**
HADS total	**5·1, 4·4, 56 (3·9–6·3)**	**11, 6·9, 63 (12·7–9·3)**	**<0·001**	**5·9 (3·9–8)**

DISCUSSION

The study's findings revealed that 53% of women experience cancer-related fatigue following gynecological cancers, a higher prevalence than previously reported in similar studies. Notably, women with cervical and ovarian cancer had the highest rates of fatigue, which might be expected given the intensive treatments these cancers often require [17,18]. However, when adjusted for age, the association between fatigue and cancer type disappeared, suggesting that age is a more significant factor than the type of cancer itself. Interestingly, younger women reported more fatigue and poorer quality of life compared to older women, a finding supported by some studies but not others. Possible explanations for this age difference include younger women's struggles to cope with a cancer diagnosis during critical life stages, their perception of cancer as a greater life threat and potentially limited coping strategies. Furthermore, the strong link between depression, anxiety and fatigue highlights the importance of addressing quality of life and fatigue in all age groups, with a particular focus on supporting younger women [19]. These findings underscore the need for tailored support and interventions to address the unique needs of women across different age groups and cancer types [20].

The interplay between age, fatigue and psychological distress in cancer patients is multifaceted. Younger patients may experience greater distress due to the disruption of their life plans, family responsibilities and perceived threat to their future. This can manifest as anxiety, depression, or fatigue. Symptoms [21]. Understanding these relationships can inform targeted interventions to support cancer patients, especially younger women, in managing fatigue and psychological distress, ultimately improving their quality of life [22]. The relationship between age and fatigue is complex. Younger patients may struggle more with cancer diagnosis due to its impact on their life stage, family, and long-term plans. They might also perceive cancer as a greater threat. In contrast, older women might view fatigue as a normal part of aging and underreport symptoms. Research suggested that older patients may be better equipped to cope with treatment, while younger women might lack effective coping strategies [23]. The study highlighted the importance of addressing quality of life and fatigue in all age groups, particularly younger women. Notably, depression and anxiety were strongly linked to fatigue, consistent with previous studies. The correlation between psychological distress and fatigue is well-documented, but the causal relationship remains unclear. Longitudinal studies are needed to better understand these dynamics. Studies have consistently shown a strong link between cancer-related fatigue and psychological distress in gynecological cancer survivors[24]. Specifically, research has found associations between fatigue, depression and anxiety in cervical cancer survivors, while ovarian cancer survivors have reported higher rates of anxiety and fatigue compared to depression [25]. The strong link between psychological distress (anxiety and depression) and fatigue is evident, but the causal relationship is still unclear. Further research, particularly longitudinal studies are needed to assess these dynamics.

In this study, women experiencing fatigue after gynecological cancer treatment reported significantly lower quality of life across all eight domains of the SF-36 questionnaire, consistent with previous studies. The most affected domains were physical role function, emotional role function, and vitality/energy, indicating that cancer-related fatigue substantially impacts daily life and functioning. This can lead to frustration, guilt and effects on deeper aspects of a woman's life and identity. Fatigue appears to have a profound influence on daily activities, potentially more so than other cancer-related conditions.

CONCLUSION

The study highlighted the need for regular follow-up care that includes screening for quality of life, fatigue, and symptom management. Healthcare providers, particularly nurses, should prioritize both physical and psychological aspects of fatigue, proactively addressing it with patients, and offering education and self-care guidance to help them manage fatigue effectively.

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