

Quality of Life in Women with Gynecological Cancers: A Study in Tertiary Care Hospital of Pakistan

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Background: Patient survival has been improved in gynecological cancer due to recent advances in diagnosis and treatment modalities. However longer survival time makes quality of life an even more challenging aspect of care. The aim of study was cross sectional evaluation of the quality of life in Gynecological cancer survivors completing at least 5 years of follow-up after treatment.

Materials and Methods: In this prospective, single-center study, 162 women were interviewed at least 3 months after completion of treatment and no longer than 5 years. Data was collected on validated questionnaire i.e. EORTC QLQ-C30 from all participants & specific questionnaires specific to cancers i.e. OV28, CX24 & EN24.

Results: The study population comprised of 25 (15.4%), 82 (50.6%) and 55 (34%) women with Cervical, endometrial, and Ovarian cancer, respectively. Average Quality of life was found to be 77.93 ± 16.65 . Mean Quality of life was reported as 74.67 in cervical cancer, 77.34 in endometrial cancer & 80.30 in ovarian cancer respectively. Similarly, five functional scales like physical (PF), role (RF), emotional (EF), cognitive (CF) and social (SF) were estimated within the mean range of 80 to 90. Fatigue & insomnia were the most common symptoms reported. Sexual functioning was the main concern among patients included in the study. Other than that, musculoskeletal pain and lymphedema were the main issues reported by patients of endometrial cancer.

Conclusion: Study Participants showed overall a good quality of life. However, certain concerns related to sexual quality of life, and chronic lymphedema need special attention to improve quality of care.

Introduction

Quality of life (QoL) refers to a person's overall well-being in physical, psychological, social, and spiritual dimensions. The World Health Organization defined QoL as 'a state of complete physical,

mental and social well-being, and not merely as the absence of disease and infirmity' in 1947 [1]. Female genital tract cancers, including ovarian, uterine, cervical, vaginal, and vulvar cancers, account for approximately 18% of all cancers in the world [2]. In Pakistan, women have a 12.6% risk of developing cancer before age 75 and an 8.5% risk of dying from cancer. Cervical cancer has an incidence and death rate of 3.2% and 3.3%, respectively, while ovarian cancer incidence and death rates are 2.6% and 2.8%, respectively. Uterine cancer incidence is 1.7%, and the death rate is 0.96% [3]. Diagnosis of gynecological cancer leads to anxiety, depression, and mental exhaustion of varying intensity, negatively impacting QoL.

There are four domains of QoL: physical, social, psychological, and spiritual. Physical well-being includes factors such as strength/fatigue, sleep/rest, overall physical health, menstrual changes, pain/neuropathy, appetite, and nausea/constipation. Social well-being includes aspects such as family strain, roles and relationships, sexuality/ fertility, isolation, finances, work, social support, and fear of genetic implications in the family. Psychological well-being includes factors like control, anxiety, depression, cognition/attention, distress of diagnosis or treatment, coping, appearance/self-concept, usefulness, and fear of recurrence. Spiritual well-being addresses aspects such as the meaning of illness, religiosity, spiritual life, hope, uncertainty, and purpose/mission in life [4].

Treatment modalities for gynecological cancers include surgery, chemotherapy, radiotherapy, or a combination of these. Surgery may involve the removal of the uterus and ovaries, which can negatively affect QoL due to hormonal deficiency [5]. Recent advances in diagnosis and treatment modalities have improved patient survival, but longer survival times make QoL an even more challenging aspect of care for these women. It is crucial to provide young cancer patients with timely and accurate information about both treatment and their reproductive options, as they may not have enough time between diagnosis and initiation of treatment to make decisions about their future, including fertility preservation. Therefore, for young cancer patients, it's necessary to give them timely and accurate information about both treatment and their reproductive options [6, 7]. Assessment of quality of life is becoming one of the most important issues in gynecological oncology. Very little data is available in literature specifically concerning the measurement and improvement of quality of life in gynecological cancer in low- and middle-income countries (LMIC). The aim of the present study was to review the factors influencing the quality of life in women with gynecological cancers being treated in a tertiary care Hospital of LMIC. The results of this study will help us in identifying modifiable factors and developing strategies to improve quality of life in these women.

Materials and Methods

This study was prospective cross sectional and included women who were diagnosed, treated, and followed with gynecological cancers. Prior to the initiation of the study, Institution ethics approval (Ref No. 2021-5755- 16596) was obtained. The study was conducted in the department of Obstetrics and Gynecology at Aga Khan University Hospital Karachi for a period of 1.5 years from 1st June 2021 till 31st December 2022. Purposive sampling was employed.

A minimum sample size of 162 was required as calculated by using Cochran's formula $Z^2 p(1-p)/e^2$ where $Z= 95\%$ confidence level gives us Z values of 1.96, e - The desired level of precision (i.e. the margin of error) as 0.05 and P is the (estimated) proportion of the population, as proportion of population affected by gynecological cancer in Pakistan is $12.7\% = 0.12$

All patients who fit in the following criteria were invited to participate,

- Gynecological cancer patients 3 months after completion of treatment who had been treated with either surgery or chemotherapy and radiation or a combination of all.
- Who had the ability to understand and communicate in Urdu or English?

- Who gave consent to participate in the study.

The patients excluded were those not willing to participate, patients with psychiatric disorders and patients on Palliative care treatment.

Data Collection Procedure

Patients were selected from Gynecology Cancer Clinic and Radiation and medical Oncology Department. Written informed consent was obtained from the recruited patients in a specially designed consent form. Investigating team member did explain to the patients about the need and role of her participation in this study and the procedure of participation which is a Questionnaire based short interview. Patients were interviewed by the investigating team members about a list of quality-of-life domains mentioned in the survey tool. This is a validated tool for determining the quality of life. They were asked to answer about the presence or absence of particular domain and its severity from 0-5 (minimal to severe). This interview took place in the consulting clinic room with complete privacy. Quality of life cancer questionnaires were filled which included.

1. Basic demographic details including age, marital status, education profile and disease related information (cancer grade, stage, & treatment).
2. European Organization for Research and Treatment of Cancer (EORTC) QLQ C30 questionnaire used to measure general quality of life in relation to cancer.
3. EORTC cancer specific questionnaires for quality of life in Cervical (CX24), endometrial (EN 24) and ovarian cancer (OV28) relevant to the patient's specific disease.

Both English and Urdu version of these questionnaire were available for this study.

Copyright permission for the use of EORTC survey tools was obtained from the European organization on research and treatment of cancer (EORTC). These questionnaires have been extensively tested in multicultural and multidisciplinary settings and have been confirmed to be reliable and valid.

Data Analysis

The data compiled and entered in Microsoft Excel 2010 was exported to IBM SPSS version 22.0 (SPSS Inc., Chicago, Illinois, USA) software for further analysis. Associations between categorical covariates were assessed by using chi square tests, while the t-test was used to assess group differences for continuous variables. For all tests, confidence interval and p-value were set at 95% and ≤ 0.05 , respectively.

Results

A total of 162 women with gynecological cancer who have been treated with either surgery or chemotherapy and radiation were included in this study. The average age of the women was 53.32 ± 11.13 years. Almost 81% were married and most of them (85.8%) belonged to the middle class. More than 85% of the women were low educated and 22.8% had a graduate degree or above. Hypertension and diabetic were observed in 52% and 28% respectively.

Out of 162 women, 25 (15.4%) had cervical cancer, 82 (50.6%) had uterine cancer, and 55 (34%) had ovarian cancer. About 65% of patients were in stage I, 25% were in stage III, 6.8% were in stage II, and 3.1% were in stage IV. The most frequent histological diagnosis was adenocarcinoma (53.7%), followed by squamous and serous. Regarding treatment modalities of cancer, surgery was performed in 90.7% cases, chemotherapy 35.8%, radiotherapy 34.6% and a combination of

chemotherapy and radiotherapy was used in 4.9% of instances (Table 1 and 2).

Variables	Mean ± SD / Frequency	Range / Percentage
Age (Years)	53.32±11.13	Range: 24-76
BMI (Kg/m ²)	29.65±6.59	Range:13.2-56.6
Marital Status		
Married	131	80.9
Unmarried	16	9.9
Widow	14	8.6
Separated	1	0.6
Socio Economic Status		
Poor	13	8
Middle	139	85.8
Upper	10	6.2
Education Status		
Illiterate	5	3.1
Primary	23	14.2
Secondary	93	57.4
Matric or Inter	4	2.4
Graduation and above	37	22.8
Comorbid	98	60.5
Hypertension	83	51.9
Diabetic Mellitus	44	27.5
Respiratory Disease	4	2.5
Cardiac Disease	4	2.5
Musculoskeletal Disease	1	0.6
Others	4	2.5

Table 1. Demographic Characteristic of Women with Gynecological Cancers (n=162).

Variables	Frequency	Percentage
Stage of cancer		
Stage 1	106	65.40
Stage 2	11	6.80
Stage 3	40	24.70
Stage 4	5	3.10
Type of Cancer		
Cervical	25	15.40
Uterine	82	50.60
Ovarian	55	34.00
Histological Diagnosis		
Adenocarcinoma	87	53.70
Squamous	21	13.00
Serous	27	16.70
Endometrial	4	2.50
Sarcoma	2	1.20
Borderline Mucinous	2	1.20
HGSC	1	0.60
Other	18	11.10

Table 2. Stage, Type, Diagnosis, and Treatment of Gynecological Cancers (n=162).

The scores of the QLQ-C30, QLQ-EN24, CX24 and OV24 were linearly transformed to a 0-100 scale according to the scoring manual of the EORTC Quality of Life. Higher QLQ-C30 scores on the functioning scale and the global QoL scale indicated better functioning or QoL, whereas higher scores on the symptom scales represented a higher level of symptoms or problems in QLQ-C30, EN24, CX24 and OV24. A higher score on items related to sexuality in the QLQ-EN24 and CX24 module indicated better sexual functioning.

Reliability analysis was performed for the five functional scales and global QoL reaching satisfactory levels of Cronbach’s alpha above 0.80 for all functions except cognitive function (0.32) and social functioning (0.69). The overall average quality of life of cancer patients was 77.93 ± 16.65 (range: 33-100). Out of 162 women, 90 (55.5%) had a QoL score between 80 and 100, 66 (40.7%) between 50 and 70, and only 6 (3.7%) were below 50. Similarly, five functional scales like physical (PF), role (RF), emotional (EF), cognitive (CF) and social (SF) were estimated within the mean range 80 to 90. Functional parameters with low scores (50) were PF 10 (6.2%), RF 4 (2.5%), EF 14 (8.5%), CF 3 (1.9%), and SF 8 (4.9%). Lower symptoms score was also showing the no serious health problems (Table3).

EORTC QLQ-C30 scores	n	Mean \pm SD	Median (IQR)	Min-Max	Cronbach's Alpha
QoL	162	77.93 \pm 16.65	83.33 (16.7)	33.3-100	0.93
Functional scales					0.87
Physical functioning	161	83.68 \pm 18.18	86.67 (26.67)	6.67-100	0.85
Role functioning	161	92.75 \pm 14.88	100 (0)	33.33-100	0.83
Emotional functioning	162	81.89 \pm 22.32	91.67 (33.33)	0-100	0.89
Cognitive functioning	159	88.78 \pm 15.63	100 (16.67)	16.67-100	0.32
Social functioning	158	86.81 \pm 20.09	100 (33.33)	0-100	0.69
Symptom scales / items*					0.85
Fatigue	162	14.44 \pm 18.06	11.11 (18.06)	0-77.78	0.77
Nausea and vomiting	162	3.60 \pm 10.94	0 (0)	0-66.67	0.81
Pain	162	11.83 \pm 17.19	0 (16.67)	0-100	0.68
Dyspnoea*	162	13.78 \pm 19.18	0 (33.33)	0-66.7	NA
Insomnia*	160	14.58 \pm 23.25	0 (33.33)	0-100	NA
Appetite loss*	162	7.20 \pm 17.70	0 (0)	0-100	NA
Constipation*	162	5.14 \pm 13.17	0 (0)	0-66.7	NA
Diarrhoea*	161	4.55 \pm 13.17	0 (0)	66.67	NA
Financial difficulties	158	14.76 \pm 25.65	0 (33.33)	0-100	NA

Table 3. Average Score of Quality of Life in Women with Gynecological Cancers (n=162).

Use a linear transformation to standardize the raw score, so that scores range from 0 to 100. High score for a functional scale represents a high / healthy level of functioning, High score for the global health status / QoL represents a high QoL, High score for a symptom scale / item represents a high level of symptomatology / problems

The relationship between mean overall QoL and age (50 vs. >50), BMI (normal, overweight, and obese), married vs. unmarried, among various levels of education, and socioeconomic position was not statistically significant. In women with cervical cancer, the mean QoL was substantially lower in single women than in married women ($p < 0.05$). Women with squamous and adenocarcinoma

diagnoses had significantly lower mean quality of life. Similarly, the mean QoL of patients who underwent surgery, chemotherapy, or radiotherapy did not differ statistically from one another. Mean global QoL, functional and symptoms scale were also not statistically significant among women with cervical, endometrial, and ovarian cancer (Table 4).

Variables		Overall	Cervical Cancer		Endometrial Cancer		Ovarian Cancer	
		n=162		n=25		n=82		n=55
Age Groups (Years)	n	QOL	n	QOL	n	QOL	n	QOL
≤ 50	61	77.73±18.05	14	77.97±17.48	17	73.04±17.31	30	80.27±18.75
>50	101	78.05±15.84	11	70.45±19.84	65	78.46±15.16	25	80.33±15.38
BMI (Kg/m ²)								
19.5-25	43	76.35±18.44	6	68.05±21.99	18	75.93±16.88	19	79.38±18.91
25.1-29.9	40	80.62±17.33	11	84.09±14.16	15	79.44±16.92	14	79.17±20.61
≥ 30	79	77.42±15.28	8	66.67±17.25	49	77.21±15.09	22	81.82±13.52
Marital Status								
Married	131	77.86±16.13	23		69	77.53±15.74	39	78.85±16.86
Widow/ Separated/Single	31	78.23±18.96	2	45.83±17.67	13	76.28±15.90	16	83.85±17.86
Education Status								
Illiterate/ Primary/Secondary	116	77.15±16.48	18	70.37±19.00	59	77.40±15.32	39	79.91±16.53
Matric/Inter/Graduation	46	79.89±17.08	7	85.71±12.46	23	77.17±16.89	16	81.25±19.12
SES								
Poor	13	81.41±18.05	5	71.66±11.18	4	79.17±25.00	4	95.83±8.33
Middle	139	77.52±16.86	19	74.12±19.82	78	77.14±15.42	46	79.52±17.89
Upper	10	79.17±11.94	1	-	4	79.17±14.43	5	75±5.89
Comorbid								
Yes	98	76.45±16.58	13	71.15±18.19	64	76.95±15.76	21	78.17±18.15
No	64	80.21±16.63	12	78.84±18.96	18	78.70±15.71	34	81.61±16.63
Stage of cancer								
Stage 1-Stage 2	117	77.42±17.44	18	74.54±20.51	72	76.96±16.04	27	80.56±19.06
Stage 3-Stage 4	45	79.25±14.50	7	75.00±13.60	10	80.00±13.14	28	80.06±15.43
Histological Diagnosis								
Adenocarcinoma	87	78.44±16.64	5	83.33±16.67	67	78.61±16.10	15	76.11±19.63
Squamous	21		17	72.06±15.85	4	66.67±3.61	24	82.98±13.78
Serous	27	82.40±14.12	1	-	2	66.67±000	15	83.33±15.43
Other	21	83.33±13.32	1	-	5	81.67±9.12		-
Treatment Modalities								
Surgery								

Yes	147	78.68±16.49	13	76.92±18.98	79	77.84±15.72	55	80.19±17.15
No	15	70.56±16.92	12	72.22±18.57	3	63.89±4.81	0	-
Chemotherapy								
Yes	58	77.87±16.04	10	73.33±19.95	14	73.21±9.34	34	81.13±16.56
No	104	77.96±17.06	15	75.56±18.22	68	78.18±16.60	21	78.97±18.37
Radiotherapy								
Yes	56	76.04±15.81	14	76.19±14.56	37	76.13±14.85	5	75.00±27.64
No	106	78.93±17.06	11	72.73±23.30	45	78.33±16.42	50	80.83±16.08

Table 4. Comparison of Quality of Life (QOL) among Gynecological Cancers (n=162).

*p<0.05.

Cervical cancer

Twenty-five cervical cancer patients were evaluated using the EORTC QLQ-CX24 scales. There were 11 (44%) at least one or some symptoms score had above 50. Mean scores for lymphedema, peripheral neuropathy, symptom experience, and body image were low (mean ranging 6 to 10). The mean scores for women’s sexual/ vaginal function, menopausal symptoms, and sexual anxiety were slightly higher (ranging 13 to 25). Regarding mean function items like sexual activity and sexual enjoyment, the score was 73.91±26.50 and 76.67±26.71 respectively. The low mean symptoms score of CX24 and high function item score showing the better QoL and sexual functioning.

Endometrial cancer

There were 82 women with endometrial cancer. There were 34 of 82 (41.4%) cases in which at least one or some symptoms score had more than 50. Overall mean symptoms score was also low and mean functional scale like Sexual interest, activity and enjoyment score was 70.71±31.22, 68.68±30.87, 78.43±25.66 respectively which showed better QoL and sexual activity.

Ovarian cancer

Fifty-five women were affected by ovarian cancer. 20 (36.6%) of the 55 women experienced at least one or some symptoms with a score of greater than 50. The average symptoms score of ovarian cancer patients showed greater quality of life.

Discussion

This study consisted of a cohort of 162 women diagnosed with gynaecological cancer and treated through surgical intervention or a combination of chemotherapy and radiation. The average age of the participants was 53.32±11.13 years, with the majority being married (81%) and belonging to the middle-class category (85.8%). Educational background indicated that over 85% had a low level of education, while 22.8% possessed a graduate degree or higher. Prevalence of hypertension and diabetes stood at 52% and 28%, respectively. The study had a participant distribution of 15.4% cervical, 50.6% uterine, and 34% ovarian cancers. Predominantly adenocarcinoma (53.7%) was diagnosed. Treatments included surgery (90.7%), chemotherapy (35.8%), and radiotherapy (34.6%). QoL scores, which were assessed through various scales, indicated an average QoL score of 77.93±16.65. Single women with cervical cancer exhibited lower QoL, while squamous and adenocarcinoma diagnoses correlated with decreased QoL. Higher function item scores related to sexual activity were associated with improved QoL.

QoL studies in high and upper-middle income East Asian countries has shown four interconnected domains highly influencing the QoL of women affected by gynaecological cancer: support, mental health, sexual function and sexuality, and physical health [8]. Futagami et al. [6] discussed the multifaceted aspects of enhancing the QoL during cancer therapy, particularly of the gynaecological origins. Surgical interventions for endometrial and cervical cancers include pelvic lymphadenectomy and nerve-sparing techniques while, adjuvant therapies for uterine cervical cancer include chemotherapy and chemoradiotherapy. Chemotherapy-related issues, such as nausea and neuropathy are known to have definitive impact on the QoL. Novel approaches, including the use of olanzapine for chemotherapy-induced nausea and the potential benefits of traditional Japanese herbal medicine in preventing peripheral neuropathy have been shown. Concerns were raised about oncofertility considerations for young cancer survivors, palliative care strategies, and the challenges associated with symptom management in ovarian cancer. Rahman et al. [1] evaluated the QoL in females with cervical cancer both before and after undergoing treatment. It examined various factors influencing the QoL in these individuals and assessed the impact of different treatment modalities on their QoL. The results demonstrated a notable enhancement in physical and emotional function, pain management, fatigue, and vaginal symptoms following treatment. However, improvements were not statistically significant in social, cognitive, or role functioning, body image, sexual activity, or sexual enjoyment. Conversely, vaginal and sexual function exhibited a significant decline. While the stage of cancer and type minimally influenced general QoL, participants with earlier stage and well-differentiated cancer exhibited improved cervical cancer specific QoL. In a comprehensive literature review that discussed the lived experiences and QoL of Nordic women following gynaecological cancer treatment Sekse et al. [9] showed that physical well-being in an altered body included menopausal symptoms, changes in sexual life, bowel and urinary complications, lymphoedema, pain, bodily preparedness, and fear of recurrence. Mental well-being explored challenges to womanhood, the rediscovery of life values, and the struggle to reconcile oneself post-cancer treatment. Psychosocial well-being highlighted the importance of a supportive partner or close person during the adjustment process, along with the necessity for conversations with healthcare professionals regarding coping strategies for changes and late effects. Even years after gynaecological cancer treatment, women grappled with profound changes affecting all three aspects of their well-being.

In a two-stage randomized controlled trial, Janda et al. [10] evaluated the efficacy of total laparoscopic hysterectomy (TLH) in comparison to total abdominal hysterectomy (TAH) for stage I endometrial cancer (LACE) with an objective to determine whether TLH yields an equivalent or enhanced QoL post-surgery when compared to TAH. The Functional Assessment of Cancer Therapy-General (FACT-G) questionnaire was used. The study reported that during the early recovery phase, patients undergoing TLH reported significantly greater improvement in QoL from baseline compared to those undergoing TAH, except in emotional and social well-being measures. Favourable QoL improvements for TLH persisted up to 6 months post-surgery, except in emotional and social well-being measures and the visual analogue scale of EuroQol five dimensions (EuroQoL-VAS). While the proportion of intraoperative adverse events was similar between groups, postoperatively, the TAH group exhibited twice as many patients experiencing adverse events of grade 3 or higher. Postoperative serious adverse events were more prevalent in the TAH group. In this study, QoL improvements and the adverse event profile support TLH over TAH for treating stage I endometrial cancer.

Roussin et al. [11] investigated the effects of cancer diagnosis and treatment on the sexual QoL (SQoL) among young gynaecological cancer survivors (YGCS) and explored their lived experiences to identify strategies for safeguarding and enhancing SQoL. The study showed that YGCS encountered notable psychosexual distress, with seven identified themes: adjustment, confidence, fear, loss, shame, trauma, and communication. Gynaecological cancer treatment disrupted daily life, exerting enduring effects on mental, physical, and emotional well-being. Alterations in self-perception, body image, and sexual identity were commonly reported. Single women felt vulnerable in new relationships, while partnered women experienced diminished sexual desire and harboured guilt about sexual challenges. Open communication, emotional intimacy, and acceptance of the

'new normal' emerged as crucial factors in mitigating the impact of cancer, contributing significantly to relationship satisfaction.

Inadequate or direct patient-clinician communication amplified psychosexual distress.

A comprehensive assessment and management strategy for improving the QoL in individuals who have survived gynaecological cancers requires a multidimensional framework. This approach must include physical, psychological, and social dimensions to adequately evaluate and address the diverse aspects influencing survivors' well-being. Targeted interventions and personalized survivorship care are important in mitigating challenges and fostering an overall improvement in the health and satisfaction of this specific population. Incorporating customized approaches into the wider healthcare framework is essential to attain the best results in the survivorship of gynaecological cancers.

Garcia et al. [12] constructed a predictive model for the QoL of individuals who have survived cervical cancer. The robust and internally validated predictive model established four predictors, viz. pain, appetite, vaginal bleeding/odour/discharge, and the social relationships subscale score of WHOQOL-BREF. Chen et al. [13] evaluated the prognostic nutritional index (PNI) and QoL among patients diagnosed with who underwent a combined regimen of radiotherapy and chemotherapy. Cervical cancer patients with low PNI undergoing radiotherapy and chemotherapy experience diminished overall QoL compared to those with high PNI. The lowered PNI adversely affects tolerance to the combined treatment and objective response rates, suggesting its utility as a prognostic indicator for cervical cancer patients. Health-related quality of life (HR-QoL) in long-term cervical cancer survivors showed that despite minor differences in mean generic HR-QoL scores between survivors and reference data, modifiable variables such as self-rated health, probable depression, fatigue, and pain demonstrated significant associations with low generic HR-QoL. The study advised that clinicians must address these factors throughout the follow-up period for potential improvement [14].

There are few limitations with the study. Its findings may lack generalizability due to the specific context of a single tertiary care hospital in a low and middle-income country. The use of purposive sampling introduces potential bias, impacting the external validity of the results. Self-reporting bias is a potential concern, and the identified lower reliability of certain assessment tools adds complexity to the interpretation of QoL measurements. Treatment heterogeneity, exclusion criteria, and the retrospective nature of the evaluation are also considerable limitations of the study.

In conclusion, study participants showed overall good quality of life score with major symptoms related to sexual functioning. However, certain concerns related to sexual quality of life, and chronic lymphedema need special attention to improve quality of care.

Acknowledgements

The authors would like to acknowledge the administration of oncology clinics for providing us with space for interviewing patients.

The authors declare no conflict of interest.

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