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Research Article

Assessment of Symptoms Prevalence and Quality of Life Among Cancer Survivors in Oman

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Purpose: To assess the prevalence and characteristics of symptoms and quality of life (QoL) among cancer survivors in Oman.
Methods: A cross-sectional correlational descriptive design was employed in three major healthcare settings in Muscat, Oman.
Results: The sample comprise 292 cancer survivors with an average age of 47.9 years (SD = 13.0) and a mean survival period of 2.5 years (SD = 3.3). The most reported symptoms were lack of energy (55.1%), numbness or tingling (53.8%), pain (53.1%), and worrying (51.7%), with an average of 10.9 symptoms per survivor. The overall QoL score was 23.9 (SD = 5.0), with the highest scores in the family (25.5, SD = 5.8) and psychological/spiritual (25.1, SD = 5.8) domains. Employment, marital status, and higher income were significant predictors of better QoL, while multiple treatments and high psychological symptoms were linked to poorer QoL.
Conclusion: This study highlights the significant symptom burden and its impact on QoL among cancer survivors in Oman. Tailored interventions addressing both physical and psychological needs are essential to enhance survivors' QoL.

Keywords: cancer survivors; neoplasms; Oman; prevalence; quality of life; symptom assessment

1. Background

Advancements in cancer prevention, early detection, and treatment modalities have significantly improved survival rates across various cancer types, transforming many cancers into manageable chronic conditions [1, 2]. These improvements in survival have shifted the focus of oncology care beyond mere survival to encompass long-term health outcomes, quality of life (QoL), and symptom burden during survivorship [3].

Despite completing treatment, cancer survivors frequently face a wide array of persistent physical and psychological symptoms that are often underestimated or underreported. These symptoms include fatigue, pain, cognitive impairment, peripheral neuropathy, sleep disturbances, and psychological issues such as depression and anxiety [4–6]. Studies have shown that cancer survivors report an average of 10–12 co-occurring symptoms, which can persist for years after treatment and significantly impair daily functioning and QoL [7, 8]. Moreover, recent data

suggest that survivors often experience health outcomes worse than the general population, including greater disability, higher psychological distress, and increased healthcare utilization [9, 10].

A recent systematic review and meta-analysis of the symptom experiences of colorectal cancer (CRC) survivors highlighted that these individuals often reported a high prevalence of several symptoms, including fatigue, gastrointestinal issues, psychological distress, peripheral neuropathy, body image distress, cognitive impairment, and insomnia [5]. The study reported that the pooled mean frequency for body image distress was 78.5%, and the mean severity for fatigue was 50.1 on a scale of 0–100. These persistent symptoms negatively affected survivors' QOL, social and sexual functioning, financial status, and mental health [5]. Additionally, another study found that CRC survivors reported higher prevalence rates of anxiety (20.9%) and depression (19.0%) compared with a normative population (11.8% and 12.8%, respectively) [6]. These symptoms persisted over a 4-year period, affecting survivors' physical, role, cognitive, emotional, and social functioning [6]. Furthermore, in alignment with this, an earlier literature review aimed to examine the current evidence on symptoms, their associated burden, and QoL among a heterogeneous cancer population [11]. The review revealed that 31% of the survivors experienced symptoms with a severity comparable to those encountered during active treatment. Moreover, it was reported that cancer survivors continue to endure several symptoms such as fatigue, depression, sleep disturbances, pain, and cognitive limitations. These experiences often persist for extended periods following the completion of treatment [11].

Furthermore, QoL and psychological distress are significant concerns among cancer survivors, impacting their overall well-being and recovery process [10]. A study analyzing data from 22,505 cancer survivors found that survivors had greater disability (20.6% vs. 12.6%), psychological distress (22.2% vs. 23.5%), and poor/fair QoL (15.2% vs. 10.2%) compared with individuals without cancer. These outcomes varied by the cancer type, with the worst outcomes observed in survivors of multiple myeloma, lung cancer, and non-Hodgkin's lymphoma. Physical disability in cancer survivors was identified as a major contributor to adverse psychological distress and QoL outcomes, highlighting the need for comprehensive support systems that address both the physical and mental health needs of cancer survivors [10]. Overall, impacts on QoL can persist up to 6 years after cancer treatment with symptoms playing a significant role in perception of QoL [7]. Moreover, a higher symptom burden was consistently associated with poorer work outcomes. Significant correlations were observed between body image issues, oral dysfunction, and work status, as well as fatigue and depression with work ability [12].

Despite the extensive research on the long-term healthcare outcomes of cancer survivors, several notable gaps persist in the current literature. Existing studies have predominantly focused on Western populations and survivors of specific cancers, mostly breast and CRCs. These studies often assess single symptoms such as pain, fatigue, and psychological distress, leaving a critical gap in understanding the overall experiences and challenges faced by survivors of other types of cancer who experience multiple symptoms. Furthermore, there is an ignorance of the cultural aspects of symptom experience. This has led to underreporting of symptoms that are subjective in nature and dependent on patient self-reporting, as patients are often reluctant to report symptoms unless explicitly asked. Symptom-reporting practices are also culturally sensitive, further limiting the generalizability of current evidence and the development of tailored interventions that address the unique needs of cancer survivors in different regions. While some symptoms are specific to the cancer type, survivors across different cancer diagnoses often experience a shared set of persistent symptoms; identifying these commonalities can support the development of streamlined, culturally appropriate symptom management strategies within general survivorship care in Oman. Moreover, in culturally conservative settings like Oman, symptom expression may be shaped by sociocultural norms across all cancer types; therefore, including diverse diagnoses allows for a more nuanced understanding of culturally influenced symptom reporting patterns and unmet needs.

1.1. Objective. The aim of this study is to assess symptoms' prevalence, characteristics, and QoL among cancer survivors in Oman.

2. Methods

2.1. Design. A cross-sectional correlational descriptive design was employed.

2.2. Settings. This study was conducted in three major healthcare settings within Muscat, where most cancer patients in Oman received treatment. The first setting was Sultan Qaboos University Hospital, a large multispecialty tertiary care hospital offering advanced hematological oncology services, including bone marrow transplants. The second setting was the Sultan Qaboos Comprehensive Cancer Care and Research Centre, a newly constructed facility specializing in solid tumor oncology and providing comprehensive services such as radiotherapy, surgical oncology, and palliative care. The third setting was the Royal Hospital, a primary oncology center established in 2004, delivering extensive diagnostic and therapeutic services, including chemotherapy, radiotherapy, and palliative care for both adult and pediatric oncology patients.

2.3. Sample, Sampling, and Sample Size. The sample consisted of cancer survivors who were conveniently selected for the study. To be eligible for inclusion, participants had to meet several criteria: they needed to have a confirmed diagnosis of cancer, as evidenced by a histopathology report, and be 18 years of age or older. Additionally, they had to

have completed their treatment regimen and be physically capable of completing the study questionnaire. Finally, eligible participants had to agree to participate in the study.

2.4. Sample Size Calculation. The sample size for this study was determined based on the planned analysis using multiple linear regression to identify the predictors of QoL. The calculation was based on the number of independent variables (m) in the regression model. For medium-sized relationships between the independent variables and the dependent variable, with a 5% significance level and 80% power, the sample size (N) needed to satisfy the following conditions [13]:

1. N should be greater than or equal to $50 + 8m$ to test the overall significance of the model (i.e., R^2).
2. N should be greater than or equal to $104 + m$ to test the significance of individual independent variables.

In this study, it was planned to include up to 20 independent variables in the regression model. Therefore, N needed to be larger than both $50 + 8\ (20) = 210$ and $104 + 20 = 124$. Thus, the number of cancer survivors required for this study needed to be greater than 210. Allowing for a 10% attrition rate, a sample size of at least 230 participants was considered adequate.

2.5. Measures

2.5.1. The Demographic Data Sheet (DDS). The DDS comprised questions aimed at collecting detailed information on participants' demographic characteristics, including sex, age, marital status, income, and education. Furthermore, the DDS gathered data on participants' general health status, encompassing aspects such as cancer diagnosis, stage of the disease, and treatment modalities.

2.5.2. The Memorial Symptoms Assessment Scale (MSAS). The MSAS was developed to assess common physical and psychological symptoms in cancer patients, encompassing 32 symptoms in total [14]. The first section evaluates 24 symptoms for severity, frequency, and distress, while the second section assesses eight symptoms for severity and distress only. A Likert scale is used for all dimensions. Each symptom score is an average of its dimensions, with higher scores indicating greater severity, frequency, and distress. The total MSAS score is the average of all 32 symptom scores [15].

The MSAS includes three subscales: the Global Distress Index (GDI), the Physical Symptom Distress Score (PHYS), and the Psychological Symptom Distress Score (PSYCH). It has been translated into many languages, including Arabic. However, the Arabic version includes only 30 symptoms, as "feeling irritable" and "feeling drowsy" were removed due to synonymity with "feeling nervous" and "dizziness" in Arabic [15]. The Arabic version has demonstrated acceptable validity and reliability.

2.5.3. QoL Index- Cancer Version (QLI-C). The QLI-C assesses both satisfaction and the importance of various life aspects [16]. The importance ratings weight the satisfaction responses, ensuring that the scores reflect respondents' satisfaction with the aspects they value most. Consequently, items deemed more important significantly influence the overall scores. QoL scores are calculated overall and within four domains: health and functioning, psychological/spiritual, social and economic, and family. This tool has demonstrated validity and reliability, boasting high internal consistency (Cronbach's alpha was 0.91 for all items) [17]. It is also available in Arabic.

2.5.4. Karnofsky Performance Status Scale (KPSS). The KPSS is a brief assessment tool used to evaluate patients' performance status, ranging from 0 (dead) to 100 (fully active). It has demonstrated high interrater reliability (0.97) and established construct and content validity [18].

2.6. Ethical Considerations. The research team obtained ethics committees' approval within the selected settings before commencing the study. Researchers explained the study's aims, procedures, and participant roles to all prospective participants. Participants were informed that completing the questionnaire would be considered implicit consent. Participation was entirely voluntary, and participants had the right to withdraw at any time.

To maintain confidentiality, participants' identities were kept anonymous, and only aggregate data were reported. Participants were assured that their responses would be kept strictly confidential. Access to the completed questionnaires was restricted to the research team only. All data were securely stored on a password-protected computer.

2.7. Data Collection. Researchers first obtained ethical approval from the designated authority. After gaining access to the hospitals, we compiled a list of patients who had completed their third treatment and were currently on follow-up. This list was updated monthly. These survivors were contacted via mobile phone and invited to participate in the study. Upon their agreement, a meeting was scheduled during their next appointment, following the necessary administrative approval to access the patients' phone numbers. During this meeting, cancer survivors were asked to complete the DDS, MSAS, and QLI-C. The KPSS was completed by a member of the research team.

2.8. Data Analysis. Data were entered into the Statistical Package for the Social Sciences (SPSS) (IBM Corp., Armonk, NY, USA), Version 29. Descriptive statistics, including percentages and frequencies, were utilized to describe the sample and symptom characteristics. Independent t-tests and Pearson's correlation coefficients were employed for bivariate analysis. Furthermore, multiple linear regression was conducted to identify the predictors of QoL among cancer survivors.

3. Results

3.1. Sample Characteristics. The sample consisted of 292 cancer survivors with an average age of 47.9 years (SD = 13.0) and an average survival period of 2.5 years (SD = 3.3). Most of the participants were female (80.5%, $n = 235$) and married (79.8%, $n = 233$). A significant proportion of the participants had a secondary school education or less (62.0%, $n = 181$), and 69.2% ($n = 202$) were unemployed. Breast cancer was the most prevalent cancer type (52.7%, $n = 154$), followed by CRC (17.1%, $n = 50$). Most of the participants had early-stage cancer (59.6%, $n = 174$). Table 1 provides detailed information on the sample characteristics.

3.2. Symptom Prevalence. Cancer survivors reported experiencing a variety of symptoms. As shown in Table 2, the most reported symptoms were lack of energy (55.1%, $n = 161$), numbness or tingling in the hands and feet (53.8%, $n = 157$), pain (53.1%, $n = 155$), and worrying (51.7%, $n = 151$). On the other hand, the least frequently reported symptoms included mouth sores (25.0%, $n = 73$), problems with sexual interest or activity (25.3%, $n = 74$), difficulty swallowing (26.4%, $n = 77$), and changes in skin (26.4%, $n = 77$). Additionally, on average, survivors reported experiencing 10.9 symptoms concurrently (SD = 10.9).

3.3. Symptom Characteristics. The MSAS assesses the frequency, severity, and distress associated with each symptom. The mean total scores were as follows: symptom frequency was 0.74 (SD = 0.7), severity was 0.56 (SD = 0.6), and total distress was 0.6 (SD = 0.7). The overall mean total score for the MSAS was 0.64 (SD = 0.7). Additionally, the mean scores for its subscales were the GDI at 0.86 (SD = 0.8), the PHYS at 0.65 (SD = 0.8), and the Psychological Symptom subscale at 0.98 (SD = 0.9).

3.4. QoL. The total mean score of the QoL index was 23.9 (SD = 5.0) out of a maximum possible score of 30. The highest mean score was for the Family Subscale at 25.5 (SD = 5.8), followed by the Psychological/Spiritual Subscale at 25.1 (SD = 5.8). The lowest mean scores were for the Social and Economic Subscale at 22.1 (SD = 5.7) and the Health and Functioning Subscale at 23.9 (SD = 5.3).

3.5. Predictors of QoL. To determine the predictors of QoL, a two-step analysis was conducted. Initially, a bivariate analysis was performed to examine the relationship between the independent variables and the QoL outcome variable. For dichotomous variables, the independent *t*-test was utilized (see Table 3), while Pearson's correlation coefficient was employed for continuous variables (see Table 4). Variables that yielded significant results ($p < 0.05$) were then included in a multiple linear regression model. These variables comprised gender, education level, work status, stage of disease, age, monthly income, survivorship period, total number of symptoms, KPSS, GDI, PSYCH, and PHYS.

Table 1: Participants' demographic and clinical characteristics ($n = 292$).

Variable	*N* (%)	Mean (SD)
Age (years)		47.9 (13.0)
Monthly income (OMR)		997.0 (350.4)
Survivorship period (years)		2.5 (3.3)
Gender		
Male	57 (19.5)	
Female	235 (80.5)	
Marital status		
Married	233 (79.8)	
Single	59 (20.2)	
Educational level		
Secondary school or less	181 (62.0)	
Diploma and above	111 (38)	
Work status		
Employed	90 (30.8)	
Unemployed	202 (69.2)	
Cancer type		
Breast	154 (52.7)	
Colorectal	50 (17.1)	
Thyroid	22 (7.5)	
Others	66 (22.6)	
Stage of cancer		
Early stage	174 (59.6)	
Advanced	80 (27.4)	
Missing	38 (13.0)	
Type of received treatment		
Single	77 (26.4)	
Multiple	215 (73.6)	

Abbreviation: OMR = Omani Riyal.

Due to signs of multicollinearity, three variables (i.e., age, total number of symptoms, and KPSS) were omitted based on their tolerance and VIF values. The final model demonstrated a good fit for the data ($F(10,164) = 8.39$, $p < 0.001$). Additionally, the model accounted for 30% of the variance in the QoL (adj. $R^2 = 0.30$).

Table 5 indicates that being employed, married, and having a high income were significant predictors of a better perceived QoL. Conversely, undergoing multiple treatments and having a high score on the psychological symptoms subscale were associated with a lower perceived QoL.

4. Discussion

4.1. Symptom Prevalence and Characteristics. The results indicate that cancer survivors in Oman experience a high prevalence of multiple symptoms, with the most common being lack of energy, numbness or tingling in the hands and feet, pain, and worrying. These findings align with global research highlighting that fatigue and psychological distress are predominant issues among cancer survivors [5, 6, 19, 20]. However, pain is particularly prevalent a cross all types of cancers, especially among breast cancer survivors [21, 22]. The prevalence of symptoms does not significantly differ across cancer types, time since diagnosis, or type of treatment, even among rare cancer types [23]. While the nature of symptoms can vary with the type of cancer, they tend to be common across most types. Notably, few studies have

Table 2: Symptoms prevalence among cancer survivors ($n = 292$).

Symptom	Frequency (%)
(1) Difficulty concentrating	137 (46.9)
(2) Feeling nervous	146 (50.0)
(3) Feeling sad	149 (51.0)
(4) Worrying	151 (51.7)
(5) "I don't look like myself"	108 (37.0)
(6) Lack of energy	161 (55.1)
(7) Numbness/tingling in hands/feet	157 (53.8)
(8) Dizziness	131 (44.9)
(9) Pain	155 (53.1)
(10) Difficulty sleeping	142 (48.6)
(11) Dry mouth	124 (42.5)
(12) Nausea	106 (36.3)
(13) Vomiting	88 (30.1)
(14) Change in the way food tastes	92 (31.5)
(15) Lack of appetite	100 (34.2)
(16) Weight loss	93 (31.8)
(17) Difficulty swallowing	77 (26.4)
(18) Cough	94 (32.2)
(19) Shortness of breath	103 (35.3)
(20) Swelling of arms/legs	98 (33.6)
(21) Sweats	112 (38.4)
(22) Itching	95 (32.5)
(23) Mouth sores	73 (25.0)
(24) Hair loss	113 (38.7)
(25) Changes in skin	77 (26.4)
(26) Feeling bloated	95 (32.5)
(27) Problems with urination	79 (27.7)
(28) Diarrhoea	84 (28.8)
(29) Constipation	104 (35.6)
(30) Problems with sexual interest or activity	74 (25.3)

included heterogeneous samples of different cancer types. For example, a systematic review found that only 6 out of 35 studies included heterogeneous samples [11]. Encouraging more studies to include diverse cancer types will provide a more comprehensive understanding of symptom prevalence.

The MSAS scores in our study reveal moderate levels of symptom frequency, severity, and distress, indicating a substantial symptom burden. The GDI and the PSYCH scores suggest that psychological symptoms significantly impact the overall well-being of survivors. This finding is consistent with the literature, which emphasizes the profound impact of psychological symptoms on cancer survivors' QoL [10]. Moreover, our study's symptom prevalence data align with those reported by Palmer et al. [24]; who found that breast cancer survivors experienced an average of 11.5 symptoms, highlighting the multifaceted nature of symptom burden among cancer survivors. These findings align with our study, suggesting that the symptom burden among cancer survivors is a global issue that transcends cultural and geographical boundaries. Oman's cultural context plays a crucial role in shaping the survivorship experience. In conservative societies, such as Oman, patients may underreport subjective symptoms, particularly psychological distress, due to cultural norms of endurance and reluctance to burden others [11]. At the same time, family support and spirituality are central coping resources, as reflected in the high family, psychological, and spiritual QoL scores in our study. These findings highlight that survivors' well-being is closely tied to cultural values, where family involvement and faith act as protective factors, whereas cultural barriers may hinder the open expression of distress [10]. Therefore, developing culturally sensitive survivorship care in Oman requires interventions that integrate family engagement, spiritual support, and strategies to encourage communication regarding psychological concerns.

These symptoms are significant and warrant thorough evaluation and management to optimize long-term outcomes for survivors. The consistent reporting of these symptoms underscores the need for comprehensive survivorship care that addresses the multifaceted challenges faced by cancer survivors. To prepare and support survivors for these expected experiences, it is crucial to enhance their self-management skills and implement well-designed follow-up programs.

4.2. QoL and Its Predictors. The overall QoL score among cancer survivors in Oman was moderate, with the highest scores in the family and psychological/spiritual domains. The spiritual domain of QoL refers to an individual's sense of meaning, purpose, inner peace, and faith, which may or may not be tied to religious beliefs [25]. This suggests that social support and spiritual well-being are crucial components of QoL for cancer survivors. Conversely, the social and economic and health and functioning domains had the lowest scores, indicating significant challenges in these areas. These findings are consistent with previous studies that highlight the detrimental effects of cancer on social and economic functioning [7, 12, 26]. Our findings align with a study that examined the impact of financial status on health-related QoL among cancer survivors [27]. The study confirmed that survivors facing financial difficulties reported lower QoL scores [27]. This underscores the crucial interplay between economic stability and health in determining overall QoL. International comparisons show similar patterns. Research has demonstrated that cancer survivors often face long-term impairments in QoL, especially in physical functioning and social roles [7]. These findings highlight the need for tailored interventions to effectively address these challenges.

However, the reported QoL among cancer survivors varies across studies. Some studies report satisfactory outcomes, while others indicate significant challenges. The use of various QoL assessment tools further complicates direct comparisons of scores. Additionally, much of the existing research was conducted years ago and may be outdated due to advancements in early cancer detection and treatment modalities. This highlights the need for updated studies to reflect current conditions and improve our understanding of cancer survivors' QoL.

The multiple linear regression analysis identified key predictors of QoL. Being employed, married, and having a high income were associated with better QoL, while undergoing multiple treatments and experiencing high psychological symptoms were linked to poorer QoL. These

Table 3: Bivariate analysis of the mean score of quality of life of cancer patients ($N = 292$).

Variable	M (SD)	df	t	95% CI	p value
Gender					
Male	25.6 (4.6)	290	−2.8	−3.44 to −0.70	0.003
Female	23.5 (5.1)				
Marital status					
Married	24.4 (4.9)	290	−2.8	−3.52 to −0.61	0.005
Single	22.3 (5.0)				
Education level					
Up to secondary school	23.3 (5.3)	290	−2.8	−2.86 to −0.50	0.004
Diploma and above	24.9 (4.4)				
Work status					
Employed	26.1 (3.8)	290	−5.1	−4.17 to −2.03	< 0.001
Unemployed	22.9 (5.2)				
Cancer					
Solid tumours	23.9 (5.1)	290	1.4	−1.39 to 4.97	0.183
Hematological	25.7 (3.8)				
Stage of disease					
Early (I & II)	24.6 (4.5)	252	2.3	0.18 to 2.73	0.025
Advanced (III and IV)	23.1 (5.3)				
Treatment					
Single	24.3 (4.9)	290	0.743	−0.82 to 1.81	0.458
Multiple	23.8 (5.1)				

Table 4: Pearson correlation coefficient test of quality-of-life score with continuous variables.

		Age	Monthly income	Survivorship period	KPSS	Total number of symptoms	GDI	PSYCH	PHYS
Quality of life	r	−0.161	0.255	0.002	−0.178	−310	−0.217	−0.275	−0.183
	p value	0.007	< 0.001	0.982	0.003	< 0.001	< 0.001	< 0.001	0.002
	N	287	197	199	271	138	292	292	292

Note: The p value is significant at < 0.05.
Abbreviations: GDI = Global Distress Index, KPSS = Karnofsky Performance Status Scale, PHYS = Physical Symptom Distress Score, PSYCH = Psychological Symptom Distress Score.

Table 5: Predictors of quality of life among cancer patents.

	B	Beta	t	Sig.	95.0% confidence interval	
(Constant)	25.63		12.50	< 0.001	21.58	29.67
Work	2.18	0.227	3.18	0.002	0.82	3.53
Income	0.001	0.167	2.36	0.019	0.0	0.002
Stage of cancer	−1.12	−0.110	−1.59	0.112	−2.50	0.2
Marital status	1.81	0.143	2.15	0.032	0.15	3.47
Type of cancer	−1.55	−0.055	−0.83	0.403	−5.21	2.10
Gender	−0.69	−0.063	−0.90	0.369	−2.22	0.83
Type of treatment	−1.68	−0.154	−2.26	0.025	−3.15	−0.21
GDI	2.58	0.441	1.81	0.072	−0.23	5.41
PHYS	−1.42	−0.238	−1.39	0.167	−3.43	0.59
PSYCH	−2.71	−0.544	−3.95	< 0.001	−4.07	−1.36

Note: The p value is significant at < 0.05.

results highlight the importance of socioeconomic factors and psychological well-being in determining the QoL of cancer survivors. Multiple treatments can lead to significant physical disabilities, which negatively affect QoL. Consistent with our findings, studies on cancer survivors' QoL revealed that physical disabilities due to treatment and deteriorating mental health are strong predictors of a decline in overall QoL [7, 28]. Additionally, several studies and systematic reviews have found that having high psychological symptoms is closely correlated with poorer QoL among cancer survivors [6, 10, 29]. Employment and income provide financial stability and a sense of normalcy, which can positively influence QoL. Additionally, several studies and systematic reviews have found that a lower socioeconomic status is closely correlated with poorer QoL among cancer survivors [11, 30, 31]. On the other hand, the psychological burden of multiple treatments exacerbates distress and negatively impacts QoL, reinforcing the need for comprehensive psychosocial support for cancer survivors.

4.3. Implication for Nursing. The findings from this study underscore the pivotal role of nursing in enhancing the QoL for cancer survivors, emphasizing the need for a multifaceted and culturally sensitive approach to symptom management. Nurses must implement comprehensive and routine assessments to identify and address the high prevalence of both physical and psychological symptoms, such as fatigue, pain, numbness, and psychological distress, all of which significantly impact survivors' QoL. Integrating tailored psychological support into survivorship care is essential, given the substantial influence of mental health on overall well-being. Furthermore, nurses should focus on empowering survivors through education on self-

management strategies to improve symptom control and enhance QoL. Additionally, involving family members in care plans, due to the positive association between social support and QoL, is crucial in fostering a supportive environment. Ultimately, a multidisciplinary and holistic approach led by nurses is critical for addressing the complex and diverse needs of cancer survivors, thereby improving long-term outcomes and their overall QoL.

4.4. Limitations. Despite its valuable contributions, this study has limitations that should be considered when interpreting the findings. The cross-sectional design limits our ability to establish causality between symptom burden and QoL. Additionally, the use of self-reported measures may introduce response bias, and the convenience sampling method may restrict the generalizability of the results. Future research should adopt longitudinal designs to track changes in symptom burden and QoL over time.

5. Conclusion

This study underscores the significant symptom burden and its impact on the QoL of cancer survivors in Oman. The findings highlight the need for comprehensive, culturally sensitive interventions that address both the physical and psychological needs of survivors. By improving symptom management and providing robust psychosocial support, healthcare providers can enhance the QoL of cancer survivors, helping them to navigate the complexities of life after cancer.

Data Availability Statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Statement

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Sultan Qaboos University Hospital (REF. NO. SQU-EC/286/2022), Ministry of Health (MoH/CSR/22/25408), and Sultan Qaboos Comprehensive Cancer Care and Research Centre (SQCCC&RC) (CCCRC-08-2022).

Consent

Informed consent was obtained from all individual participants included in the study.

Disclosure

All authors read and approved the final manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Mohammad Al Qadire, Hanan Abdelrahman, and Sulaiman Al Sabei, and Rama Al Qadire contributed to data collection. The first draft of the manuscript was written by Mohammad Al Qadire and Hanan Abdelrahman, and all authors commented on previous versions of the manuscript. Mohammed Al-Azri, Omar Al Omari, and Huda Al Awaisi provided critical revisions and feedback.

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