Quality of life in cancer patients – A systematic review

Vlora Ejupi¹, Nexhmije Gori², Astrit M. Gashi³

¹Clinic of Hematology, University Clinical Center of Kosovo, Pristina, Kosovo
²Clinic of Neonatology, University Clinical Center of Kosovo, Pristina, Kosovo
³Clinic of Obstetrics and Gynaecology, University Clinical Centre of Kosovo, Prishtina, Kosovo

INTRODUCTION

Cancer is a major health problem worldwide. Globally, cancer is one of the most common causes of morbidity and mortality and this is projected to increase by at least 70% by 2030 [1]. Inadequate symptom management can prevent an individual from performing daily activities. Treating symptoms will help alleviate suffering and improve quality of life [2]. Symptoms have a major impact on the quality of life in cancer patients. Greater symptom burden has been associated with higher levels of emotional distress and poorer physical and social functioning [3]. Thus, effective symptom management may improve quality of life in patients with cancer [4].

Anticancer therapy causes personal, mental, and emotional distress among individuals with cancer, affecting their overall quality of life. Quality of life research findings provide information about the effect of disease and its treatment on functioning and well-being, the recognition of common problems, and the design of appropriate approaches to solving these issues. These findings help to assess the effect of chemotherapy on patients’ well-being and to predict response to therapy [5].

A cancer diagnosis can be devastating and deciding on the right treatment can be complicated and scary. Patients are asked to consider factors including mortality from disease and the potential for acute and chronic morbidity from treatment. Appropriate decision-making requires a satisfactory patient understanding of these treatment choices, which include potential benefits and harms [6]. The primary focus of cancer treatment has always been to increase overall and disease-free survival; however, quality of life is recognized as an important ultimate goal [7].

Best practices for the management of advanced cancer are a global health concern, especially in developing countries.
veloping countries [8]. When curative strategies are exhausted, the focus of cancer care shifts to preserving quality of life and prolonging survival [9]. Studies show that 20 to 50% of patients with advanced cancer receive chemotherapy at the end of life with the goals of prolonging and improving survival [10].

Cancer still remains a major public health problem in the world. In 2040, 16.3 million people are expected to be living with cancer, most of them from low- and middle-income countries. In these countries, the diagnosis of most cancers is often made at advanced stages when treatment options are limited or unavailable [11].

The quality of life together with the evaluation of the efficacy and safety of the treatment became the basic goal of the therapeutic approach. Self-assessment of quality of life is based on a subjective scale of symptom severity. It complements the clinical assessment and helps predict survival. Studies have shown that baseline quality assessment along with physical status assessment is an important source of prognostic information in lung cancer patients [12].

**METHODS**

**Identification of research**

In the Scopus, Web of science and PubMed databases, the literature related to the quality of life in cancer patients was searched. Search keywords: quality of life, patients, cancer, symptoms, neoplastic drugs. Keywords are combined with Boolean operators (AND/OR): “quality of life” AND “patients” AND “cancer” OR “malignant neoplasm” AND “neoplastic drugs” OR “chemotherapy” OR “radiotherapy” AND “oncology”.

Inclusion criteria: Studies published in English from medicine, nursing and health; studies published from 2012 to 2022; original quantitative studies; full-text studies with patients diagnosed with cancer as the population of interest.

Exclusion criteria: Studies published outside medical, nursing and health journals, studies published in languages other than English, articles published before 2012 and studies with limited access were excluded.

**Selected research**

The studies were selected in accordance with the criteria of Prisma flow diagram in the literature review database. During the identification, a total of 705 studies were found, of which 37 of them were removed as duplicates. The review examined the remaining 668 studies, excluding 515 studies that were not in e-format or PDF. In the acceptance phase, out of a total of 153 studies, 87 studies with a different study design and 50 studies with other pathologies (not cancer patients) were excluded. Sixteen studies were included in the current review (Figure 1).

In order to prevent and reduce prejudices in the process of selecting studies, a colleague from doctoral studies has also been engaged. Disagreements were discussed and resolved with full agreement by both researchers.

**Assessment of the quality of the research**

The evaluation of the quality of the studies selected for the systematic review was done on the basis of the hierarchy of evidence in scientific research work Polit & Beck, (Table 1).

**RESULTS**

**Description and findings of the research involved**

Patient income was statistically related (F = 3.612, p = 0.006) to life characteristics. Thus, patients with higher incomes reported better quality of life than those with lower incomes. So, the life history of cancer patients and income is independent of demographic variables, such as age, educational status, cancer type of their patients and duration of death [13].

The overall mean lifetime FACT-G score for illiterate patients was low (p = .009) and also for those engaged in agriculture/business (P = .04). No differences were found when FACT-G overall QoL scores were compared in terms of age, income status, can-
FIGURE 1. Prisma flow diagram in the database literature review

cer type, number of ADRs, and comorbidity. Mean social well-being scores of patients who did not go to school (illiterate) were found to be true low ($P = 0.033$). Mean well-being subscale scores for patients who were functional in agriculture/business were low views ($P = 0.04$) [14].

Regarding the areas of life of 80 patients in outpatient chemotherapy, it was found that social and physical was the most endangered, while the environment was the greatest. Comparison between scores showed a difference only in terms of self-rated health. The highest scores were found in the best health group. To suggest that self-esteem can be a predictor of how people live their lives, as they are the results for further studies on this topic. In addition, this study shows the need related to this study, all these particular studies related to their appearance in this study [15].

Patients with good rates of disease metastases had HRQoL. Further, the incomplete assistance of patients with Ca and the level of satisfaction with general care and found that care in the extent of HRQoL. Therefore, early detection of the neoplasm to arrest metastasis is warranted to achieve a better QoL. In addition, it is recommended to address the unmet needs of these patients and ensure higher levels of satisfaction to maintain adequate HRQoL [16].

In the studies of Özkorumak E, et al. [17], it was found that there is a relationship between the edu-
Patient income was statistically associated (F = 3.412, p = 0.006) with quality of life. Thus, patients with higher incomes reported better quality of life in parallel with the increase in the level of the educational status of members and members of their lives. In parallel with the increase in the level of the educational status of members and members of their lives. In parallel with the increase in the level of the educational status of members and members of their lives.

In a study conducted by Sarayan on life knowledge, it was found that the physical functioning scores of high school graduates were significantly lower. When the results of the QLQ-BR23 lifetime study were examined, university graduates were found to have lower body image, arm symptoms and use effects scores. These results, similar to the literature, suggest that increasing the level of education contributes to patients' information, level of awareness and access to effective coping methods.

In a study investigating the life histories of hematology and oncology patients undergoing chemotherapy, there was no association between these studies and the patients' work status. Unlike this study, when analyzing the results of the study of Acil et al. [18], it was found that with the level of education of patients, the life outcomes of people who worked also increased. In the study Kirca et al. [19] those who did not work and found that they had significantly lower functioning and social functioning scores than physical creators. This finding can be interpreted as follows: in the processes of victims who may have some other methods of dealing with those that are not possible, his attention is focused on the other side and they act with other people in this way. Coping with effectiveness and their state of well-being increases.

Compared to the relevant literature, most studies emphasize that marital status has effects positive on perceived level of social support, shared emotional burden, early cancer detection, treatment and survival. Additionally, support for medical assistance from partners in managing anxiety-related symptoms related to cancer is reported to result in less worry and depression. Hashfield et al. [20] investigated the relationship between marital status and cancer survival and found that those who were married had significantly lower anxiety-related symptoms than those who were not. In the study Kaya et al. [18] those who did not work and found that they had significantly lower functioning and social functioning scores than physical creators. This finding can be interpreted as follows: in the processes of victims who may have some other methods of dealing with those that are not possible, his attention is focused on the other side and they act with other people in this way. Coping with effectiveness and their state of well-being increases.

TABLE 1. The evaluation of the quality of the studies selected for the systematic review

<table>
<thead>
<tr>
<th>Study (author, year) &amp; Country</th>
<th>Purpose of the study</th>
<th>Type of cancer (by location)</th>
<th>Type of cancer treatment</th>
<th>Dependent variables</th>
<th>Independent variables</th>
<th>Research design</th>
<th>Research sample/Setting</th>
<th>Sampling method</th>
<th>Data Collection (Instrument/s)</th>
<th>Main results</th>
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</thead>
<tbody>
<tr>
<td>Nayak et al. (2017) India</td>
<td>To assess the QOL among cancer patients.</td>
<td>Breast/cervix/head-and-neck/gastro-intestinal cancer tract/lung/colorectal cancer</td>
<td>Radiotherapy &amp; chemotherapy</td>
<td>QOL</td>
<td>Demographic &amp; disease related variables</td>
<td>Exploratory design</td>
<td>768 patients in cancer hospitals</td>
<td>Convenient</td>
<td>QOL version II 41 items</td>
<td>82.3% reported poor quality of life scores 96.1% poor overall well-being; 72.3% poor physical well-being; 53.5% poor psychological well-being; 93.6% economic well-being below average.</td>
</tr>
<tr>
<td>Ramasubbu et al. (2021) India</td>
<td>To assess the QOL &amp; factors affecting it in adult cancer patients undergoing chemotherapy treatment.</td>
<td>Not reported</td>
<td>Chemotherapy</td>
<td>QOL</td>
<td>Age (independent variable) Type of cancer Stage of the disease</td>
<td>Cross-sectional</td>
<td>20 adult patients of a tertiary care hospital</td>
<td>Consecutive</td>
<td>FACT-G</td>
<td>The total FACT-G QOL mean score was 61.93 ± 5.85. An evaluation of subscale mean scores shows that physical well-being (min: 0-max: 28) was 17.39 ± 2.692; social well-being (min: 0-max: 28) was 15.95 ± 3.493, emotional well-being (min: 0-max: 24) was 14.50 ± 2.158, and functional well-being (min: 0-max: 28) was 13.95 ± 3.295; the subscale which was most negatively affected was functional well-being followed by emotional well-being.</td>
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<tr>
<td>Mansano-Schlosser &amp; Ceolim, (2012) Brasil</td>
<td>To evaluate the quality of life in cancer patients undergoing chemotherapy</td>
<td>Colon, head &amp; neck, digestive system, lung, genital system</td>
<td>Chemotherapy</td>
<td>QOL</td>
<td>Gender, marital status, &amp; type of cancer</td>
<td>Cross-sectional</td>
<td>80 patients in a university hospital</td>
<td>Not reported</td>
<td>WHOQOL-Bref instrument</td>
<td>The highest scores were in the group with better assessment of their own health. The Psychological domain reached the highest scores, unlike the others, who evaluated the Environment domain best. The results suggest that health self-assessment can be a reliable predictor of quality of life in these patients.</td>
</tr>
<tr>
<td>Schaller et al. (2017) Sweden</td>
<td>To identify potential factors that may influence QoL in patients with head &amp; neck cancer during radiotherapy</td>
<td>Head &amp; neck cancer</td>
<td>Radiotherapy</td>
<td>QoL</td>
<td>Pain intensity, pain interference, catastrophizing, mood disturbances, anxiety, &amp; depression.</td>
<td>Cross-sectional</td>
<td>54 patients at a University Pain and Rehabilitation Center</td>
<td>Not reported</td>
<td>Self-reported questionnaires: EQ-SD EQ-VAS</td>
<td>The patients in this study scored high for QoL, low for pain intensity, and low for pain interference. The patients reported minor depressive symptoms and anxiety symptoms. Regression analyses showed that pain intensity and depressive symptoms negatively influenced QoL.</td>
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<tr>
<td>Maurer et al. (2021) Germany</td>
<td>To investigate HRQoL over time using patient-reported status before diagnosis, during treatment, 1 year post-surgery, approx 5, years and ≥10 years post-diagnosis</td>
<td>Breast Cancer</td>
<td>Not reported</td>
<td>QoL</td>
<td>Nodal status Tumor size Educational Status BMI in Diagnosis / Recruitment Smoking status Taking alcohol Physical activity Family status Osteoporosis Diabetes Rheumatic diseases</td>
<td>Control cohort studies</td>
<td>Cohort of 1123 BC patients &amp; of 3453 matched controls</td>
<td>Not reported</td>
<td>EORTC QLQ-C30</td>
<td>Over all ages, the general HRQoL in patients improved in the first 5 years post-diagnosis. In the subsequent years, HRQoL slightly deteriorated but was comparable to that of the controls. Younger survivors mostly improved their HRQoL from the 5 to 10-year follow-up but remained negatively affected for most functioning and symptom scales compared to controls. In older survivors, HRQoL hardly changed over time and detriments were less pronounced compared to controls, except for insomnia</td>
</tr>
<tr>
<td>Priyanka et al., 2018) India</td>
<td>To determine the quality of life in regional cancer patients</td>
<td>Breast cancer Cervical cancer Ovarian cancer</td>
<td>Chemotherapy</td>
<td>QoL</td>
<td>Age Sex Type of cancer</td>
<td>Cross-sectional</td>
<td>92 Females and 32 Males from Institute of Oncology and Regional Cancer Centre</td>
<td>Not reported</td>
<td>EORTC QLQ-C-30</td>
<td>The observations have shown that the cancer patients in spite of having better functioning and minimum symptoms, their perception was that they had poor quality of life. It is concluded that the therapy should be individualized for each patient not just based upon the type or stage of cancer but also based on the patient’s priorities, concerns and symptoms along with treating the disease. In simple words it can be said that the therapy should be patient oriented rather than disease oriented.</td>
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<tr>
<td>Ximenes et al. (2021) Brasil</td>
<td>To evaluate the impact of age in health-related quality of life (HRQoL) in older adults with cancer.</td>
<td>Breast Prostate Digestive system</td>
<td>Not reported</td>
<td>QoL</td>
<td>Age Sex Lives with a partner Education Family income Smoking Alcoholism</td>
<td>Cross-sectional</td>
<td>608 older adults diagnosed with cancer</td>
<td>Not reported</td>
<td>HRQoL</td>
<td>Cognitive function showed the highest scores (average 87.94 ± 26.87), while physical function showed the lowest ones (68.04 ± 28.63). The highest symptom score was observed for financial difficulties (34.21 ± 39.06), followed by pain (29.47 ± 33.92) and insomnia (28.51 ± 37.03). After adjustment, we observed a decrease in physical function (p = 0.028) and an improvement in emotional function (p = 0.003) with increasing age.</td>
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<tr>
<td>Mardani et al. (2020) Iran</td>
<td>To describe HRQoL among Iranian PCa survivors and compare it with age at cancer diagnosis and time passed from it</td>
<td>Prostate cancer</td>
<td>Radiotherapy</td>
<td>QoL</td>
<td>Age, BMI (body mass index), marital status, education level, employment status, economic status, need for help in daily living activities</td>
<td>Cross-sectional</td>
<td>186 patients</td>
<td>Not reporting</td>
<td>EORTC QLQ-C30 EORTC QLQ - PR25</td>
<td>The cancer survivors with older age at cancer diagnosis had significantly lower physical (p = 0.001) and sexual function (p = 0.09), and higher social function (p = 0.03), fatigue (p = 0.02), dyspnea (p = 0.008), urinary (p = 0.007) symptoms and financial difficulties (p = 0.03). Also, statistically significant differences between time passed from cancer diagnosis and physical function (p = 0.03), urinary (p = 0.001) and bowel (p = 0.02) symptoms and urinary aid problems (p = 0.006) were reported</td>
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<tr>
<td>Abegaz et al., (2018) Ethiopia</td>
<td>The present study determined the HRQoL and its determinants among people living with Ca</td>
<td>Colorectal Ca Cervical Ca Lung Ca Blood related Ca Breast Ca</td>
<td>Chemotherapy</td>
<td>HRQoL</td>
<td>Age, gender, functional status &amp; symptom scales</td>
<td>Prospective hospital based study</td>
<td>150 patients from a cancer center</td>
<td>Consecutive</td>
<td>EORTC QLQ-30</td>
<td>The rate of QoL was 52.7 (20.1) (mean ± SD). The highest functional status was emotional functioning 61 (25.5). Patients with no disease metastasis, 92.1 (5.1), had high QoL as compared to metastasis, 22.1 (18.9) (p = 0.03). Patients with affected physical functioning have a 20% reduction in QoL and Adjusted Odds Ratio (AOR) of 0.794 [0.299–891]. Patients with low satisfaction level with the provided care, 0.82 [0.76–0.93], and those with unmet needs, 0.85 [0.80–0.95], experienced reduced level of HRQoL.</td>
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<td>Kirca et al. (2018) Turkey</td>
<td>The aim of this study is to evaluate the symptoms experience and quality of life in patients with breast cancer receiving the taxane class of drugs</td>
<td>Breast Cancer</td>
<td>Chemotherapy</td>
<td>QoL</td>
<td>Age, family type, marital status, working status, family history of breast cancer, treatment protocol, number of cures &amp; chronic diseases</td>
<td>Descriptive study</td>
<td>48 patients from the chemotherapy unit of a university hospital</td>
<td>Not reported</td>
<td>EORTC QLQ-C30 EORTC QLQ-BR23</td>
<td>The symptoms they experienced severely were included fatigue and energy loss and being sensitive. The most distressing symptoms were pain, worry, numbness in hands and feet. The overall well-being score of the patients as per the quality of life findings was 46.18±11.66. While the lowest score for the functional scales was in the social function subscale (66.3±15.18), the highest score for the symptom scales was in the pain subscale (42.0±15.37). The lowest score for the EORTC QLQ-BR23 scales was in the sexual life subscale (20.8±20.19); the highest score was in the body appearance subscale (65.8±23.96)</td>
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<tr>
<td>Finck et al. (2018) Colombia</td>
<td>To examine QoL in breast cancer &amp; to explore the relationship between QoL, habitual optimism, &amp; social support</td>
<td>Breast cancer</td>
<td>Surgery Radiotherapy Chemotherapy Hormone Therapy</td>
<td>QoL</td>
<td>Age, marital status, occupational status, habitual optimism &amp; social support</td>
<td>Cross-sectional</td>
<td>95 breast cancer patients treated in a hospital</td>
<td>Random</td>
<td>EORTC QLQ-C30 Test LOT-R</td>
<td>The breast cancer patients showed detriments to their QoL on most functioning scales and symptom scales of the EORTC QLQ-C30, while their general assessments of health and QoL were not worse than those of the controls. Optimism was positively correlated with QoL. Most patients wanted and received social support from their physicians and friends/family</td>
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<tr>
<td>De Melo Filho et al. (2013) Brasil</td>
<td>To evaluate the quality of life of patients dealing with squamous cell carcinoma of the head and neck</td>
<td>Head &amp; neck cancer</td>
<td>Surgery + Radiotherapy Chemotherapy + Radiotherapy Surgery + Chemotherapy + Radiotherapy Radiotherapy alone</td>
<td>QoL</td>
<td>Age Gender Skin color Marital status Income Years of schooling Occupation Treatment type</td>
<td>Prospective analytical study</td>
<td>29 patients</td>
<td>Not reported</td>
<td>EORTCQLQ-C30 QLQ-H&amp;N35</td>
<td>There was a significant quality of life reduction for the patients throughout treatment in relation to some common symptoms in the treatment of cancer, which did not occur in the assessment of the aspects associated with the social, cognitive and physical functions</td>
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<td>Šeparović et al. (2018) Croatia</td>
<td>To find out which symptoms are the most associated with a breast cancer patients QoL &amp; depression</td>
<td>Breast cancer</td>
<td>Surgery (lumpectomy &amp; mastectomy)</td>
<td>QoL</td>
<td>Fatigue Pain Nausea &amp; vomiting Insomnia Appetite loss Constipation Diarrhea</td>
<td>Cross-sectional</td>
<td>147 breast cancer patients from University Hospital</td>
<td>Not reported</td>
<td>EORTC QLQ-C30 Beck Depression Inventory II</td>
<td>Fatigue ($\bar{r}=-0.47, P&lt;0.001$), pain ($\bar{r}=-0.24, P=0.023$), and appetite loss ($\bar{r}=-0.18, P=0.037$) were statistically significantly correlated with QoL. Fatigue was the only symptom significantly associated with depression ($\bar{r}=0.39, P&lt;0.006$)</td>
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<td>Garcia et al. (2021) Brasil</td>
<td>Investigates whether self-compassion and self-awareness are related to patients' quality of life during chemotherapy</td>
<td>Breast, Prostate, Colorectal</td>
<td>Chemotherapy</td>
<td>QoL</td>
<td>Mindfulness, Self-compassion, Common humanity, Isolation, Self-judgement</td>
<td>Cross-sectional</td>
<td>183 patients from oncology clinic</td>
<td>Not reported</td>
<td>Self-compassion scale, Mindful Attention Awareness Scale, FACT-G</td>
<td>Mean scores for the study variables were 4.23 (SD = 0.63) for self-compassion, 69.05 (SD = 13.27) for mindfulness, and 80.25 (SD = 12.62) for quality of life. Significant positive correlations were observed between quality of life and self-compassion (r = 0.466, p &lt; 0.001), as well as for quality of life and mindfulness (r = 0.325, p &lt; 0.001). Higher levels of self-compassion and mindfulness were associated with better quality of life.</td>
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<tr>
<td>Liao et al. (2014) Taiwan</td>
<td>To examine the changes in quality of life (QOL), symptoms, self-efficacy for coping with cancer, and factors related to those changes in patients with newly diagnosed advanced lung cancer</td>
<td>Lung cancer</td>
<td>Chemotherapy [CT], radiotherapy [RT], CT plus RT [CT+RT]</td>
<td>QoL</td>
<td>Age, Gender, Education, Marital status, Religion, Occupational status, Comorbidities, Treatment</td>
<td>Longitudinal and correlational</td>
<td>101 patients newly diagnosed from a medical center</td>
<td>Not reported</td>
<td>EORTC QLQ-C30, CBI-B</td>
<td>Patients reported moderate levels of global QOL, symptom severity, and self-efficacy for coping with cancer. They also reported high physical and cognitive functions, but relatively low role and social functions. Factors were significantly related to the most functional dimensions, including self-efficacy, fatigue, pain, sleep difficulties, and demographic and disease-related factors. Self-efficacy was the most robust factor for predicting QOL.</td>
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<tr>
<td>Yer, Taylor-Stokes, Roughley (2013) France &amp; Germany</td>
<td>To assess patient reported symptom burden and impact on disease specific health related quality of life (HRQOL) in advanced non-small cell lung cancer (NSCLC) patients</td>
<td>Lung cancer</td>
<td>LCSS FACT-L</td>
<td>QoL</td>
<td>Age, Gender, Ethnicity, Stage of disease, Histology, Site of metastasis, Smoking history, Family History of Lung Cancer, Time since diagnosis (days)</td>
<td>Cross-sectional</td>
<td>France (n = 613) &amp; Germany (n = 600)</td>
<td>Consecutive</td>
<td>LCSS FACT-L, EQ-5D</td>
<td>Majority of the patients were male (67%), Caucasian (93%) with an average age of 63 years. Fatigue, loss of appetite, shortness of breath, cough and pain were reported by ≥90% of patients. The mean health utility index score was found to be 0.58 and the mean general health status score was 58.0. Fatigue (β = -0.122; p &lt; 0.001), loss of appetite (β = -0.170; p &lt; 0.001), pain (β = -0.145; p &lt; 0.001), shortness of breath (β = -0.118; p &lt; 0.001) were found to be significant predictors of lung cancer specific quality of life as measured by the FACT-L total score.</td>
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than those with lower incomes. So, the quality of life of cancer patients improves with increasing income and is independent of demographic variables, such as age, educational status and type of cancer of their patients and duration of treatment [13].

The overall mean FACT-G quality of life score for illiterate patients was significantly lower (p = .009) and also for those engaged in agriculture/business (P = .04). No significant differences were found when comparing overall mean FACT-G QoL scores in terms of age, income status, cancer type, number of ADRs, and disease stage. The mean social well-being scores of patients who never attended school (illiterate) were found to be significantly lower (P = 0.033). The mean emotional well-being scores of patients having more ADRs were significantly lower (P = 0.00). The mean functional well-being subscale scores for patients who were engaged in agriculture/business were significantly lower (P = 0.04), [14].

Regarding the quality of life of 80 patients in outpatient chemotherapy, it was found that the fieldsocial and physical were the most endangered, while the environment was the most preserved. Comparison between scores showed a significant difference only in terms of self-rated health. The highest scores were found in the group with the best assessment of their health. The results suggest that self-rated health can be a reliable predictor of quality of life in these patients, being important for further studies on this topic. Furthermore, this study shows the need for health professionals to be aware of the aspects that can affect the physical and psychological domains, as these were the most compromised aspects in this study [15].

Patients with limited rates of metastatic disease had improved HRQoL. Further, the unmet needs of Ca patients and the level of satisfaction with overall care were found to influence the extent of HRQoL. Therefore, early detection of the neoplasm to arrest metastasis is warranted to achieve a better QoL. In addition, it is recommended to address the unmet needs of these patients and ensure the highest degree of satisfaction to maintain adequate HRQoL [16].

In the studies of Özkorumak E et al. [17], it was found that there was a relationship between the educational status of the patients and their quality of life. In parallel with the increase in the level of education, the results of the quality of life of the patients also increase. In a study conducted by Saryğen on quality of life, it was found that the physical functioning scores of high school graduates were significantly lower. When QLQ BR23 quality of life scores were examined, university graduates were found to have lower body image, arm symptoms, and side effect scores. These results, similar to the literature, suggest that increasing the level of education contributes to the patient's access to information, the level of awareness and the development of effective coping methods.

In a study investigating quality of life in hematology and oncology patients undergoing chemotherapy, there was no significant relationship between quality of life and patients' work status. Unlike this study, when examining the results of the study of Acil H, et al. [18] it was found that as the educational level of the patients increased, the quality-of-life scores also increased among working women.

In the study Kirca et al. [19], those who were not working were found to have significantly lower physical functioning and social functioning scores than working women. This finding can be interpreted as follows: in the treatment process, working patients have fewer financial worries than those who do not work, their attention is focused on the other side and they interact with other individuals and thus use the methods of coping effectively and their state of well-being has increased. Compared to the relevant literature, most studies emphasize that marital status has effects positive on perceived level of social support, shared emotional burden, early cancer detection, treatment and survival. Additionally, support for medical assistance from partners in managing anxiety-related symptoms related to cancer is reported to result in less worry, anxiety, and depression. Hasfield et al. [20] also reported that the support of family and friends helped create a strategy to cope with the intensity of side effects. Aizer et al. [21] investigated the relationship between marital status and cancer survival and found that unmarried cancer patients were at increased risk for cancer-related metastasis and death compared with married individuals. Findings related to the QLQ-BR23 showed that body image and sex life outcomes decreased in those aged 45 years and older [20].

**DISCUSSIONS**

In the study of Nayak et al. [13] most physical well-being of cancer patients was affected by pain (72.9%), sleep problem (71.7%) and fatigue (91.8%). Psychological well-being was affected by feeling very depressed among 54.4% of participants and 98.3% were not satisfied in attending social functions. Most of them, therefore (76.2%), were afraid of the recurrence of the disease, 98.3% felt that their income status was reduced due to the physical condition/disease and 85.7% of them were not satisfied with their body image [13].

These results are supported by Gandhi et al. [22] who conducted a study of 100 patients with advanced incurable head and neck cancer who were offered palliative radiation and suffered from many symptoms such as pain, insomnia, loss of appetite.
and fatigue. Findings from other studies also show that there was a decrease in quality of life due to common symptoms resulting from cancer. Many authors reported that side effects of treatment affect quality of life in patients depending on individual circumstances, type of cancer and its treatment [23].

A significant positive association was seen between the government/private employee group and overall QoL. Studies also show a contradictory relationship between employment status and QoL. Employment may provide financial means to control illness, but may worsen QoL for due to frequent hospital visits and workload. While unemployed patients may face financial difficulties, they may attend hospital visits in a more comfortable manner than those who are employed. In addition, friends and colleagues in the workplace can also play a crucial role in improving QoL [13].

The findings of this review indicate low QoL among cancer patients on anticancer therapy. Functional well-being was most affected among cancer patients, followed by emotional well-being among cancer patients on cancer therapy. From our study, it was found that the overall quality of life of the patients was influenced by the education and professional status of the patient. Unemployed and illiterate patients have worse QoL than employed and educated patients [13].

Mardani et al. [24] concluded that participants with older age at cancer diagnosis reported lower physical function and sexual activity. Age is the most important factor affecting HRQoL in prostate cancer patients Porreca et al., [25]. Similar to these findings, Mardani et al. [24] showed that patients with prostate cancer and a younger age at diagnosis had better physical function and sexual activity than those with an older age (>70 years).

In the 2015 American Cancer Society guidelines, fatigue, impaired sexual function, weight loss, neuropathy, oral health problems, hair loss, change in libido, and pain are among the symptoms that can be associated with cancer chemotherapy of the breast [26].

In a study by Yeþilbakan et al. [27], who investigated the effects of chemotherapy treatment on patients’ symptoms and quality of life, it can be seen that patients suffered from loss of appetite (39.8%), fatigue (39.8%), and symptoms of lack of energy (38.8%) in a “soft” level. More than half of the patients (51%) had symptoms of hair loss at a “very high” level. When psychological symptoms experienced by patients during treatment were assessed, 45.6% stated that they were “a little” angry during treatment and 35.9% were “somewhat” nervous [27].

In the study by Yildirim et al. [28], most patients rated their symptoms of difficulty paying attention, pain, loss of energy, self-irritability, dry mouth, difficulty sleeping, anxiety, and loss of appetite as “moderate”. In the same study, most patients reported that these symptoms were “a little more” bothersome [28]. Cancer-related fatigue is a common symptom. Pain, anemia, sleep problems, and mood disorders are symptoms that can accompany fatigue [28]. Pain, which is another symptom that patients most often experience during and after chemotherapy treatment, can be due to muscle pain, joint pain, gastrointestinal pain, mucositis, cardiomyopathy, pancreatitis, extravasation, and peripheral neuropathy [29].

Psychological and social problems such as depression, anxiety, feelings of sadness, adjustment disorder, anger, hopelessness, worsening body image, and social isolation may accompany physical problems in women diagnosed with breast cancer and receiving treatment. The frequency, severity, and level of distress of these problems are influenced by variables such as the patient’s personality, attitude toward illness, support systems, and treatment protocol, and thus patient adaptation to treatment becomes difficult. Along with ineffective treatment, the meaning patients attribute to the disease, fear of disease recurrence, future anxiety, and treatment-related symptoms increase psychological problems [27]. In a study conducted by Özkorumak et al. [17], psychological distress in breast cancer patients was found to be similar in severity during treatment and remission. Patients in high school and lower education level groups are thought to have less information about treatment-related symptoms, low health care control behavior, insufficient access to social support system, and incidence of symptoms. Psychological aspects of ineffective coping [30].

**CONCLUSION**

From the reviewed literature we understand that the term quality of life is defined in an individual as the perception of life, values, objectives, standards and interests in the framework of culture. It is the subjective assessment of life as a whole or the patient’s evaluation and satisfaction with their current level of function compared to what they perceive as possible or ideal. Quality of life is a multidimensional construct that captures the subjective well-being (both positive and negative aspects) of patients in the physical, emotional, functional and social domains.

In an individual, all areas of quality of life can be affected by cancer. Deterioration in quality of life begins after diagnosis of malignancy and continues due to the vigorous nature of treatment. Cancer patients receive chemotherapy to fight the disease. By
the majority of the cancer population, chemotherapy is being used as the first line of patient management. Although chemotherapy has a therapeutic effect, it is associated with the development of severe adverse drug reactions, which can have negative effects on an individual’s quality of life. Moreover, anti-cancer therapy requires time after administration to obtain the desired effect.

Ultimately, cancer patients experience many symptoms that affect quality of life. Therefore, their management is a critical issue in the care of cancer patients. All health professionals must ensure that patients receive timely and appropriate education and care.

In the future there is a need to develop measures for effective symptom management and to improve quality of life. Key issues are symptom management and the need to use strategies that will empower patients to have a better sense of control over their illness and treatment.

It is necessary to initiate programs for patients in anticancer therapy in order to alleviate their physical and emotional suffering and consequently to improve the quality of life.

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