

Health-Related Quality of Life and Social Support of Elderly Lung and Gastrointestinal Cancer Patients Undergoing Chemotherapy

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Abstract

Introduction: Increasing life expectancy has led to a higher incidence of cancer in the elderly, thus making them vulnerable and worsening their health-related quality of life (HRQoL) and their need for support.

Objective: The aim of this study was to examine the HRQoL and social support in elderly Greek lung and gastrointestinal cancer patients undergoing chemotherapy.

Methods: This was a descriptive, cross-sectional study of 104 elderly cancer patients, who were receiving chemotherapy in the outpatient department and inpatient ward of a General Hospital in Athens. The data were collected using purposive sampling between December 2019 and May 2020, and included demographic and clinical characteristics, the HRQoL questionnaire, Short Form 36 (SF36), and the Personal Resource Questionnaire (PRQ-2000).

Results: The participants' median age was 72 years; the majority were male (62.5%) and had lung cancer (57.7%). The SF36 data revealed a relatively moderate (42.7–62.61) HRQoL in most subscales. The "Pain" subscale recorded the highest score (75.0), and the "social function" subscale the lowest (42.79). The PQR-2000 indicated a satisfactory level of social support (81.65), with values ranging between 48 and 105; married patients with higher education scored more highly ($p < .05$). Patients aged 65–75 years reported better HRQoL and greater social support than older patients. In addition, patients with their own family and a relatively high income reported better HRQoL and social support compared to single individuals, with low income, who were cared for by their children. Positive and statistically significant ($p < .05$) correlations were found between the SF36 subscales of role functioning/physical, vitality, general health, emotional well-being and the PRQ-2000.

Conclusion: The HRQoL and social support of elderly cancer patients positively affect the course of their health. Healthcare systems and social services should address the multiplying needs of these patients with targeted interventions to support their well-being.

Keywords

health-related quality of life, social support, elderly, cancer, chemotherapy

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Introduction

Old age is the period of life starting from 65 years of age. This period is subdivided into the young old (65–74 years), middle old (75–84 years), and very old (≥ 85 years). In Europe, the number of older people is increasing and older age is associated with an increased risk of developing cancer (WHO, 2015). Almost 60% of new cancer diagnoses and 70% of cancer-related deaths occur in people aged over 65 years (WHO, 2015). Cancer is most frequently considered

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a disease of aging. Forty-three percent of cancer diagnoses are made in people over 70 years old (Fitch et al., 2015). Aging comes many problems, which may be functional, emotional or cognitive (e.g., decreased mobility, frailty, diminishing cognitive status, depression), and socioeconomic changes. These factors, together with comorbid health situations, can negatively impact cancer and the consequences of treatment (Fitch et al., 2015). Often, these patients are admitted to the hospital when cancer progression happens, to treat cancer-related signs and symptoms (febrile neutropenia, infection, pain, fever, and dyspnea), treatment-related complications, and for end-of-life support (Vandyk et al., 2012). In this context, the health-related quality of life (HRQoL) of elderly cancer patients is severely affected.

The World Health Organization (WHO) defines the quality of life as “an individual’s perception of their position in life, in the context of the culture in which they live and in relation to their goals, expectations, standards and concerns” (WHOQOL Group, 1995). HRQoL is related to patients’ perceptions regarding their physical, emotional, social and mental functions, and expresses patients’ perceptions about their life, at any given time in the course of the disease (Adamakidou & Kalokerinou, 2011). Symptoms of cancer and its treatment, such as fatigue, vomiting, nausea, anxiety, depression, and pain, are most common among elderly cancer patients and, along with other symptoms and comorbidities, are associated with decreased physical function and HRQoL (Astrup et al., 2017). HRQoL in the elderly is recognized as an important patient-reported outcome to enhance our understanding of the patient’s experience, the evaluation of disease progression and treatment outcomes, together with toxicity grading, survival and mortality rates (Cheng et al., 2018; Drageset et al., 2021).

The concept of social support emerged in studies of the 1970s. It can be defined as the perceived availability, or actual provision of a relationship, information, or assistance, that empowers a person to manage their day-to-day life effectively in the presence or absence of a crisis. Social support can be classified into structural or functional aspects. Structural measures refer to the existence of social relationships and have a linear relation with people’s quality of life. Functional measures, on the other hand, refer to resources and services provided by people within an individual’s social network and are typically what people think of when considering social support. In addition, there are further categories of functional measures, such as emotional, instrumental, and informational support (Ghazzawi et al., 2016). In the cancer care context, social support is defined by the National Cancer Institute (NCI) as a network of family, friends, neighbors, and community members who are available in times of need to provide psychological, physical, and financial help to patients with cancer (National Cancer Institute). Social support is important for cancer patients, and several studies have shown that social support

improves coping, well-being, physical function, emotional status, and overall QoL, while decreasing disease-related stress (Mattioli et al., 2008; Nausheen et al., 2009; Usta, 2012).

Social support also plays a key role in supporting elderly cancer patients, mitigating the negative effects of the diagnosis and treatment of cancer, and improving cancer outcomes (Kadambi et al., 2020). Expectedly, but unfortunately, the elderly come face to face with life changes, such as widowhood or retirement that lead to a reduction of their social support networks. This can easily result in isolation and loneliness that can be intensified by the cancer experience (Robb et al., 2013) and the progression of chemotherapy and hospitalization, which can worsen the HRQoL of patients (Sultan et al., 2017; 2018). As a result, the elderly are more vulnerable when they have unmet social supportive care needs (Williams et al., 2019).

Social support is a complicated concept and its many dimensions and perceptions can vary among geographic, social, economic, racial, and ethnic groups, thus making its measurement difficult (Taylor et al., 2007). Thus, we have to take into account the differences between perceived and received social support. Perceived social support refers to the subjective evaluation of the availability and adequacy of social connections, while received social support is the quantity and the quality of the actual support provided to a person. This differentiation is material because different methods are used to assess each type of support and in turn, each support type has a different effect on HRQoL and general health and well-being (Haber et al., 2007).

From the current literature, it is clear that adequate social support for older cancer patients is necessary to maintain HRQoL and reduce mortality and morbidity. Nevertheless, studies in Greece relating to this issue are scarce and the social support needs and problems of these patients need further investigation. Thus, the aim of this study was to investigate the HRQoL and perceived social support of elderly lung and gastrointestinal cancer patients undergoing chemotherapy and to examine the relationship between these variables and the factors affecting them.

Methods

Research Design

A descriptive, cross-sectional study using the purposive sampling method was conducted during the period from December 2019 to May 2020.

Research Questions

1. What is the correlation between QoL and social support of elderly cancer patients undergoing chemotherapy?
2. Which patients’ characteristics affect the QoL and social support of elderly cancer patients undergoing chemotherapy?

3. Do patients' demographic, clinical data, and social support predict the QoL of elderly cancer patients undergoing chemotherapy?

Sample

The study sample consisted of cancer patients undergoing chemotherapy as inpatients at the oncology ward and as outpatients at the day care oncology clinic of a central General Hospital of Athens. Of the 120 patients who met the inclusion criteria, 104 agreed to participate in the study (response rate of 87%).

As the sample availability was limited and only 120 patients from the hospital met the inclusion criteria, a sensitivity analysis using G*power 3.1.9.7 (Faul et al., 2009) was conducted in order to compute the required effect size given the available sample size (104 participants). For a statistical power of 90% and 12 predictors of a multiple regression model, the required effect size to achieve significance was $f^2 = 0.23$ which is equivalent to an $R^2 = 0.19$.

Inclusion Criteria

The recruitment of the sample was guided by the following inclusion criteria:

1. Patients' age 65 or older
2. Patients diagnosed with lung or gastrointestinal cancer
3. Being in current chemotherapy treatment after the third or fourth cycle and after the first assessment of the disease's response to treatment
4. Patients with the ability to speak and understand the Greek language

Exclusion Criteria

Patients who were younger than 65 years old, did not have the ability to communicate, were diagnosed with a mental disorder, or could not understand the Greek language were excluded from the study.

Measurements

The set of questionnaires included the patients' demographic and clinical characteristics, the QoL questionnaire, Short Form 36 (SF36) (Ware Jr & Sherbourne, 1992) and the Personal Resource Questionnaire (PRQ-2000) (Weinert, 2003). The estimated time for completion of the questionnaires was approximately 20 min. The data were collected by the basic researcher before the patient's chemotherapy session, after receiving written informed consent.

Short-Form 36. This questionnaire consists of 36 self-administered questions, using eight multi-item scales, physical function (PF), role function/physical (RFP), role function/emotional (RFE), vitality, emotional well-being (EWB), social

function (SF), bodily pain (BP), and general health perception (GH). The eight scales were scored separately from 0 to 100, with higher scores indicative of a better outcome. The number of questions included in each scale ranges from 2 for SF and BP to 10 for PF, and the number of response options per question ranges from 2 (yes or no) to 6 (none, very mild, mild, moderate, severe, or very severe). The questionnaire is validated in the Greek language by Pappa et al. (2005).

Personal Resource Questionnaire (PRQ-2000). PRQ-2000 is designed to measure perceived social support and includes 15 questions. It is graded on a seven-point Likert scale and shows the degree of the respondent's agreement or disagreement (from 1 = strongly disagree to 7 = strongly agree). The score of the scale ranges from 15 to 105, with the highest score being an indication of a higher level of perceived social support. The questionnaire is validated in the Greek language by Kavga-Paltoglou (2016).

Ethics

The study was approved by the Hospital Ethics Committee and all patients signed an informed consent form prior to the participation in the study.

Statistical Analysis

Data analysis was performed using IBM SPSS® software, version 25 (IBM Corp., Armonk, NY), and the level of significance was set at $p < .05$. For the qualitative variables, relative, and absolute frequencies were calculated, while for the quantitative variables, the mean values and standard deviations or the median (intra-quaternary range) were calculated. To investigate the relationship between quality of life and social support, Spearman's nonparametric correlation coefficient (r_s) was calculated. Additionally, in order to determine whether social support predicts quality of life, linear regression models were constructed in which demographic and clinical data were added as possible covariates. Finally, for the comparison of the questionnaire scores based on the demographic and clinical characteristics, for the normally distributed variables the Student t-test for independent samples (for two groups) or ANOVA analysis (for more than two groups) was performed, while for the asymmetric variables the nonparametric Mann-Whitney U test (for two groups) or the Kruskal-Wallis test (for more than two groups) was used.

Results

Sample Characteristics

The patients' characteristics are presented in Table 1. Of the 104 cancer patients recruited, 62.5% were men and 70.2% were married. The patients' mean age was 72 years. Regarding their diagnosis, the majority had lung cancer (57.7%) and the rest (42.3%) had gastrointestinal cancers

(colorectal cancer, stomach cancer). Means, standard deviations and ranges for the SF-36 subscales and PRQ 2000 scale are shown in Table 2.

Research Question Results

Correlation Between HRQoL and Social Support

Positive correlations were found between the SF36 subscales of RFP, Vitality, EWB, GH, and PRQ-2000, and these were

statistically significant ($p < .05$). The strongest correlation factors were observed for EWB ($r_s = 0.520$, $p < .01$) and GH ($r_s = 0.526$, $p < .01$). However, no statistically significant correlations were observed between PRQ-2000 and the SF36 subscales of PF, RFE, SF, and BP (Table 3).

Table 1. Demographic and Clinical Characteristics.

Patient characteristics	N	%
Sex		
Male	65	62.5
Female	39	37.5
Age (years)		
65–75	80	76.9
75–85	20	19.2
>85	3	2.9
Education		
Primary	39	37.5
Middle	40	38.5
Higher	25	24.0
Insurance		
Yes	86	82.7
No	17	16.3
Marital Status		
Married	73	70.2
Single	15	14.4
Widowed	11	10.6
Divorced	4	3.8
Children		
Yes	81	77.9
No	21	20.2
Relationship with patient		
Spouse	65	62.5
Children	12	11.5
Other	27	26.0
Responsible for their care		
Siblings	5	4.8
Spouse	37	35.6
Children	20	19.2
Spouse & children	19	18.3
None	23	22.1
Types of cancer		
Colon	32	30.8
Rectal	11	10.6
Lung	60	57.7
Stomach	1	1.0
Monthly income (euros)		
<500	27	26.0
500-1000	42	40.4
>1000	34	32.7
Comorbidity		
Yes	52	50
No	52	50

Effect of Patients' Characteristics on HRQoL and Social Support

There were no statistically significant differences in the SF36 or the PRQ-2000 scores ($p = .70$) in relation to either sex or the type of cancer (PRQ-200, $p = .49$). In general, though, correlations were observed between the demographic and clinical characteristics and the scales of the study. Firstly, age had an effect, with older patients (75 years and older) having lower scores at a statistically significant level than those aged 65–75 years in the SF36 subscales of PF ($p = .01$), Vitality ($p = .03$), SF ($p = .001$), and BP ($p = .04$), but also in PRQ-2000 ($p = .002$). Moreover, a statistically significant major effect of education on PRQ-2000 was observed ($p = .03$). Multiple comparisons with the Sidak significance criterion correction showed that participants with higher education scored higher on the PRQ-2000 scale ($p < .05$) than those with just primary education. Marital status also did not impact the SF-36 subscales. However, married participants scored higher than nonmarried participants in the PRQ-2000 ($p = .045$). Notably, the person who cared for the patient impacted the PRQ-2000 ($p = .02$). Sidak correction multiple analyses showed higher scores for participants receiving care from their spouse and children than for those receiving care only from their children or their siblings, and those not receiving care from anyone ($p < .05$).

Income was statistically significantly associated with the SF36 subscales of RFE ($p = .02$) and GH ($p = .03$) and the PRQ-2000 ($p = .04$). Multiple analyses with the Dunn–Bonferonni correction showed higher scores on all of these three scales ($p < .05$) for participants with a monthly income of over 1000 euros than for those with an income of less than 500 euros.

Table 2. Distribution of SF36 Subscale Scores and PRQ-2000 Total Score.

	Min	Max	Mean	SD
Physical function	0.00	100.00	62.61	32.85
Role functioning/physical	0.00	100.00	49.28	41.14
Role functioning/emotional	0.00	100.00	50.32	44.79
Energy/fatigue	0.00	100.00	58.32	22.56
Emotional well-being	16.00	100.00	58.82	20.39
Social functioning	0.00	100.00	42.79	27.14
Pain	0.00	100.00	78.75	29.14
General health	10.00	95.00	54.38	18.64
PRQ-2000	48.0	105.0	81.65	12.74

Table 3. Spearman r_s Correlation Coefficients Between SF-36 Subscales and PRQ-2000 Scale.

	PF	RFP	RFE	Vitality	EWB	SF	BP	GH	PRQ-2000
PF	–	0.595**	0.223	0.519**	0.230	0.533**	0.253	0.419**	0.280
RFP	–	–	0.213	0.501**	0.337*	0.349*	0.223	0.401**	0.331*
RFE	–	–	–	0.456**	0.469**	0.306	0.163	0.445**	0.289
Vitality	–	–	–	–	0.718**	0.440**	0.369**	0.631**	0.494**
EWB	–	–	–	–	–	0.191	0.256	0.514**	0.520**
SF	–	–	–	–	–	–	0.321*	0.351**	0.242
BP	–	–	–	–	–	–	–	0.328*	0.171
GH	–	–	–	–	–	–	–	–	0.526**

* $p < .05$ (Holm–Bonferroni correction for multiple comparisons). All correlations are Spearman's r_s .

** $p < .01$ (Holm–Bonferroni correction for multiple comparisons) ($n = 36$).

Predictors of HRQoL

To investigate the extent to which demographic and clinical data, as well as the degree of social support, predicted participants' HRQoL, a series of multiple linear regression models were constructed for each subscale. The regression models for the SF36 subscales were not statistically significantly better at predicting HRQoL scores than simple averages, except for the subscales of Vitality, EWB and GH. In particular, of all the independent variables, only social support (PRQ-2000) predicted a statistically significant score difference on the Vitality ($b = 0.46$), EWB ($b = 0.51$), and GH ($b = 0.47$) subscales, while other factors did not (Table 4).

Discussion

The evaluation of HRQoL and social support of elderly lung and gastrointestinal cancer patients are two parameters that significantly influence both the choice and the results of treatment. The present study attempted to evaluate these two parameters. The main finding was that patients had a moderate HRQoL and satisfactory perceived social support, and that these two were positively correlated. Younger patients, married, with higher income and higher education, and those cared for by their families, had better HRQoL and support.

Our findings are in accordance with those of other studies. In general, cancer patients reported a significantly higher level of perceived social support than the general population, but a lower HRQoL (Yoo et al., 2017).

In the general elderly population, social support and HRQoL are strongly associated (Bahramnezhad et al., 2017) and this also applies to elderly cancer patients. An analysis of a geriatric cancer population showed that elderly patients living with their spouse had a lower risk of anxiety, depression, and mortality than unmarried patients. The researchers concluded that patients with higher levels of social support had better mental health and better HRQoL (Kadambi et al., 2020). Higher levels of perceived social support were also associated with better mental health outcomes and higher HRQoL in older adults with advanced cancer (Applebaum et al., 2014). In a study from

Iran, the majority of patients (94.5%) perceived a high rate of social support from their families, friends, and relatives (Naseri & Taleghani, 2012).

The main source of care and empowerment of cancer patients, especially the elderly, is their close family environment (spouses, children). According to the results of a study by Heiydari et al. (2008), most of these patients considered their family members and spouses as the main supporters of their social network. This is in line with our own finding that patients who were cared for by their spouse and children had better support than others. There seems to be a direct relationship between HRQoL and not only social support but also the size of the social networks of patients with cancer (Heiydari et al., 2008).

In addition, studies have shown that social support is influenced by a society's culture and religion and promotes the patient's HRQoL. The quality and quantity of social support can vary between geographical, social, economic, and racial–ethnic groups (Yoo et al., 2010).

Furthermore, married patients had higher levels of social support than unmarried patients. One study looked at the levels of hope and social support among married cancer patients compared to those who did not have a spouse. The results showed that hope and social support were at higher levels in married patients than in unmarried ones (Goldzweig et al., 2016). Another study, which included 53 elderly cancer patients in a large hospital in Northern Greece, showed that married patients had a better HRQoL and greater social support than other patients (Lavdaniti et al., 2017). Cancer patients with a mean age of 65 years consider their spouse to be the most important source of social support (Leung et al., 2014; Geue et al., 2019). Additional research has shown that married cancer patients have lower levels of stress and anxiety and faster adaptation to their disease problems than single patients (Naseri & Taleghani, 2012).

The HRQoL of our sample was mediocre. The main symptom that affected the patients' HRQoL was pain, while they had high EWB. Managing pain in elderly cancer patients is difficult and complicated. Ineffective treatment of cancer pain can lead to depression, anxiety, isolation, sleep and appetite disorders, and especially loss of functional capacity and HRQoL (Colloca et al., 2015).

Table 4. Multiple Regression Analysis of SF36 Subscales.

SF36 subscales	R^2	p	PRQ-2000 B	PRQ-2000 SEB	PRQ-2000 β
Vitality (Energy/fatigue)	0.29	<.05	0.82	0.18	0.46*
EWB	0.34	<.0001	0.85	0.16	0.51*
GH	0.34	<.000	0.69	0.15	0.47*

* $p < .001$.

B = unstandardized beta; SEB = standardized error of B; β = beta coefficient.

In the present study, social support positively affected the RFP, vitality, EWB, and GH of elderly cancer patients, with EWB and GH taking the lead. Thus, elderly patients who have support from family, friends, or social environment have a better HRQoL in the above areas. Studies have shown that social support makes cancer patients more optimistic and enables them to develop the belief and hope that they will beat cancer (Li et al., 2016). A descriptive study of 71 patients over the age of 60 who received chemotherapy showed that higher levels of social support helped patients feel safe and experience low levels of fatigue. In addition, the results showed that patients with adequate social support felt safe, and this helped reduce the level of fatigue they experienced from chemotherapy (Karakoç & Yurtsever, 2010). Likewise, in another study, patients with low perceived social support reported significantly higher levels of depression, lower scores on all functional scales, and lower HRQoL, indicating that perceived social support was directly associated with mental health and HRQoL (Eom et al., 2013).

In general, social support is accepted as one of the key psychosocial factors that have shown significant but inconsistent prognostic value in cancer. Further research into the mechanisms underlying this relationship showed that lack of social support (or high levels of subjective loneliness) can translate into psychosocial stress, which then alters the endocrine and immune systems. Vascular endothelial growth factor (VEGF) was found to be an angiogenic mechanism through which loneliness may lead to worse cancer-related outcomes. Research in patients with colorectal cancer showed that higher levels of perceived loneliness independently predicted stronger expression of VEGF, after controlling for Dukes' stage and actual loneliness, both of which were nonsignificant predictors (Nausheen et al., 2010).

Regarding income, we found that a higher income was associated with greater perceived social support and RFE, GH. A study from Turkey (Yilmaz et al., 2017) showed that there was a statistically significant association between social support and HRQoL, and that the best predictor that had an effect on perceived social support scores was perceived economic status (both middle, and good to very good economic status). Similar results were reported in a study conducted in the United States with 136 elderly

cancer patients, diagnosed with breast, colon, lung, and prostate cancer, where low-income patients had poorer health and social support than higher-income patients (Schwartz et al., 2019). It is possible that relative financial comfort enables the patients and their carers to obtain some form of assistance at an appropriate cost, while allowing them not to worry about medical costs and other health expenses and improving their way of living during treatment.

Furthermore, our findings suggest that the higher the level of education of the elderly patients, the higher the level of HRQoL and social support. In China, Wang et al. (2015) studied the relationship between social support and HRQoL in 803 patients with esophageal cancer. Correlations were found between physical function and social support. Aging and low education negatively predicted social support scores. Elderly patients with a low level of education had very little social support compared to patients with a higher level of education (Wang et al., 2015).

In addition, older elderly patients (over 75 years old) had less PF, felt more fatigue and pain, and had less energy than patients 65–75 years old. Their social contacts and the social support they received were also lower compared to the patients in the age group of 65–75 years. As patients' age increases, their HRQoL decreases (especially in the areas of PF, vitality, SF, BP) as does their perceived social support. A large study of 1460 elderly cancer patients explored their need for social support. Elderly patients had reduced levels of social support, as a result of retirement or widowhood. This led them to isolation and loneliness, resulting in a negative impact on their HRQoL (Kadambi et al., 2020). Another study of 96 elderly patients (mean age 73.5 years) undergoing chemotherapy found that their health status was positively related to their HRQoL and that having social support greatly reduced depression and fatigue (Robb et al., 2013).

In our study, the sample of patients was 104 people over the age of 65 years. Of these, 80% were aged 65–75 years, 17% were aged 75–85 years, and only 2.9% were over 85 years old. It is reported that 60% of cancers and 70% of cancer deaths occur in patients over 65 years of age, and that the incidence of cancer increases to a maximum in the age range 75–85 years and shows a reduction to flattening in people over the age of 85 (Cinar & Tas, 2015).

Strengths and Limitations

The limitations of this study include its cross-sectional design, which precludes any conclusions regarding causality in the relationships explored. Moreover, the small study sample from a single hospital does not allow the generalization of our findings. Also, the questionnaires used to collect the data have the limitations of all subjective assessments. Despite its limitations, this study was the first attempt in Greece to identify the HRQoL and social support of elderly cancer patients and the factors that affect them.

Implications for Practice

Cancer is a life-threatening disease, with significant effects on the HRQoL of patients, especially the elderly population. These effects are even greater when patients experience additional problems due to their advanced age. Having social support is very important for the elderly, especially when they are faced with a serious and life-threatening illness and undergo exhausting and long-term cancer treatment.

Healthcare professionals, especially nurses, have a significant role in supporting elderly people in the clinical and community setting. As life expectancy increases, evaluating the HRQoL and social support of older cancer patients undergoing chemotherapy is becoming increasingly important in the health sector. Elderly cancer patients should have the same rights and access to care as any younger patient. This prevents worse situations that affect these patients' autonomy and dignity, resulting in a serious reduction in their HRQoL. Moreover, attention to the needs of the elderly is a social necessity, and it seems that evaluating the social network and HRQoL of the elderly can help toward a better understanding of their needs.

Conclusion

The results of the present study showed that elderly cancer patients had lower levels of HRQoL and social support compared to younger patients. Higher levels of HRQoL and social support were perceived by patients who received family care, had a higher monthly income and a higher level of education. This indicates the importance of these factors for elderly cancer patient and makes it clear that they should not be overlooked by cancer care professionals. Research into the HRQoL and social support of elderly cancer patients needs to be expanded in the future, given the aging population and the consequent growth in their healthcare needs.

Future studies should employ longitudinal designs and include many cancer centers and the testing of interventions to improve the HRQoL and the well-being of elderly cancer patients. A continuing investigation of the changing needs of this specific group of patients will contribute to their successful management. Cancer nurses should make it a priority to systematically evaluate elderly cancer patients' emotional

status and HRQoL throughout their cancer trajectory, for the timely identification of those at risk. Moreover, reinforcing social support with organizational support and the establishment of some type of screening for distress in patients may lead to better cancer-related outcomes.

In addition, the state and the Ministry of Health must be actively involved and measures should be taken to support elderly patients without a caregiver or family to support them. These patients need help and support to meet their daily needs and achieve a better HRQoL. In addition, public building infrastructure should be developed for the housing and care of elderly patients who are in advanced stages of the disease and do not have support or financial resources. All elderly patients, regardless of their socioeconomic state, deserve equal access to cancer care and palliative care services to ensure their quality of life.

This study was a step toward understanding the social network status and HRQoL of elderly cancer patients in Greece. These findings might shed light on future studies in Greece and could guide improvement efforts targeting patients with cancer who are at greater risk.

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Authors' Note

The licenses granted for the implementation of the study included: Assessment and approval by the Scientific Council and Committee on Ethics and Research of the Hospital (21-5-2020/209). The research was carried out after permission had been obtained from the hospital's ethics and research committee. In particular, approval was obtained by the Scientific Council and Committee on Ethics and Research of the hospital (21-5-2020/209). Patients were informed about the study verbally and in writing and gave their signed informed consent to participate in the study. In addition, protection of the participants' personal data was ensured by having the questionnaires completed anonymously and then coded.

Declaration of Conflicting Interests

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References

Adamakidou, T., & Kalokerinou, A. (2011). Quality of life and cancer patient. *Balkan Military Medical Review*, 14(4), 289-302.

- Applebaum, A. J., Stein, E. M., Lord-Bessen, J., Pessin, H., Rosenfeld, B., & Breitbart, W. (2014). Optimism, social support, and mental health outcomes in patients with advanced cancer. *Psychooncology*, 23(3), 299–306. <https://doi.org/10.1002/pon.3418>
- Astrup, G. L., Hofsvø, K., Bjordal, K., Guren, M. G., Vistad, I., Cooper, B., & Rustøen, T. (2017). Patient factors and quality of life outcomes differ among four subgroups of oncology patients based on symptom occurrence. *Acta Oncologica*, 56(3), 462–470. <https://doi.org/10.1080/0284186X.2016.1273546>
- Bahramnezhad, F., Chalikh, R., Bastani, F., Taherpour, M., & Navab, E. (2017). The social network among the elderly and its relationship with quality of life. *Electronic Physician*, 9(5), 4306–4311. <https://doi.org/10.19082/4306>
- Cheng, K. K. F., Lim, E. Y. T., & Kanesvaran, R. (2018). Quality of life of elderly patients with solid tumours undergoing adjuvant cancer therapy: A systematic review. *BMJ Open*, 8(1), e018101. <https://doi.org/10.1136/bmjopen-2017-018101>
- Cinar, D., & Tas, D. (2015). Cancer in the elderly. *Northern Clinics of Istanbul*, 2(1), 73–80. <https://doi.org/10.14744/nci.2015.72691>
- Colloca, G., Lattanzio, F., Balducci, L., Onder, G., Ronconi, G., Landi, F., Morlans, G., & Bernabei, R. (2015). Treating cancer and non-cancer pain in older and oldest old patients. *Current Pharmaceutical Design*, 21(13), 1706–1714. <https://doi.org/10.2174/1381612821666150130124926>
- Drageset, J., Sandvik, R. K., Eide, L. S. P., Austrheim, G., Fox, M., & Beisland, E. G. (2021). Quality of life among cancer inpatients 80 years and older: A systematic review. *Health and Quality of Life Outcomes*, 19(1), 1–16. <https://doi.org/10.1186/s12955-021-01685-0>
- Eom, C. S., Shin, D. W., Kim, S. Y., Yang, H. K., Jo, H. S., Kweon, S. S., & Park, J. H. (2013). Impact of perceived social support on the mental health and health-related quality of life in cancer patients: Results from a nationwide, multicenter survey in South Korea. *Psychooncology*, 22(6), 1283–1290. <https://doi.org/10.1002/pon.3133>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fitch, M. I., McAndrew, A., & Harth, T. (2015). Perspectives from older adults receiving cancer treatment about the cancer-related information they receive. *Asia-Pacific Journal of Oncology Nursing*, 2(3), 160–168. <https://doi.org/10.4103/2347-5625.160971>
- Geue, K., Götze, H., Friedrich, M., Leuteritz, K., Mehnert-Theuerkauf, A., Sender, A., & Köhler, N. (2019). Perceived social support and associations with health-related quality of life in young versus older adult patients with haematological malignancies. *Health and Quality of Life Outcomes*, 17(1), 1–10. <https://doi.org/10.1186/s12955-019-1202-1>
- Ghazzawi, A., Kuziemy, C., & O'Sullivan, T. (2016). Using a complex adaptive system lens to understand family caregiving experiences navigating the stroke rehabilitation system. *BMC Health Services Research*, 16(1), 1–10. <https://doi.org/10.1186/s12913-016-1795-6>
- Goldzweig, G., Baider, L., Andritsch, E., & Rottenberg, Y. (2016). Hope and social support in elderly patients with cancer and their partners: An actor-partner interdependence model. *Future Oncology*, 12(24), 2801–2809. <https://doi.org/10.2217/fon-2016-0267>
- Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology*, 39(1), 133–144. <https://doi.org/10.1007/s10464-007-9100-9>
- Heiydari, S., Salahshorian, A., Rafie, F., & Hoseini, F. (2008). Correlation of perceived social support and size of social network with quality of life dimension in cancer patients. *KAUMS Journal (Feyz)*, 12(2), 15–22. http://feyz.kaums.ac.ir/browse.php?a_id=633&sid=1&slc_lang=en
- Kadambi, S., Soto-Perez-de-Celis, E., Garg, T., Loh, K. P., Krok-Schoen, J. L., Battisti, N., Moffat, G. T., Gil, L. A. Jr, Mohile, S., & Hsu, T. (2020). Social support for older adults with cancer: Young international society of geriatric oncology review paper. *Journal of Geriatric Oncology*, 11(2), 217–224. <https://doi.org/10.1016/j.jgo.2019.09.005>
- Karakoç, T., & Yurtsever, S. (2010). Relationship between social support and fatigue in geriatric patients receiving outpatient chemotherapy. *European Journal of Oncology Nursing*, 14(1), 61–67. <https://doi.org/10.1016/j.ejon.2009.07.001>
- Kavga-Paltoglou, A. (2016). *Health promotion behaviors in family caregivers of stroke patients within the community (doctoral dissertation)*. National and Kapodistrian University of Athens. Faculty of Health Sciences. Department of Nursing. Public Health Sector. <https://www.didaktorika.gr/eadd/handle/10442/39564?locale=en>
- Lavdaniti, M., Zyga, S., Vlachou, E., & Sapountzi-Krepia, D. (2017). Quality of life in elderly cancer patients undergoing chemotherapy. In P. Vlamos (Ed.), *Genedis 2016. Advances in experimental medicine and biology*, vol 989. Springer, 291–295.
- Leung, J., Pachana, N. A., & McLaughlin, D. (2014). Social support and health-related quality of life in women with breast cancer: A longitudinal study. *Psychooncology*, 23(9), 1014–1020. <https://doi.org/10.1002/pon.3523>
- Li, M. Y., Yang, Y. L., Liu, L., & Wang, L. (2016). Effects of social support, hope and resilience on quality of life among Chinese bladder cancer patients: A cross-sectional study. *Health and Quality of Life Outcomes*, 14(1), 1–9. <https://doi.org/10.1186/s12955-016-0481-z>
- Mattioli, J. L., Repinski, R., & Chappy, S. L. (2008). The meaning of hope and social support in patients receiving chemotherapy. *Oncology Nursing Forum*, 35(5), 822–829. <https://doi.org/10.1188/08.ONF.822-829>
- Naseri, N., & Taleghani, F. (2012). Social support in cancer patients referring to Sayed Al-Shohada hospital. *Iranian Journal of Nursing and Midwifery Research*, 17(4), 279–283. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3702147/>
- Nausheen, B., Carr, N. J., Peveler, R. C., Moss-Morris, R., Verrill, C., Robbins, E., Nugent, K. P., Baker, A. M., Judd, M., & Gidron, Y. (2010). Relationship between loneliness and proangiogenic cytokines in newly diagnosed tumors of colon and rectum. *Psychosomatic Medicine*, 72(9), 912–916. <https://doi.org/10.1097/PSY.0b013e3181f0bc1c>
- Nausheen, B., Gidron, Y., Peveler, R., & Moss-Morris, R. (2009). Social support and cancer progression: A systematic review. *Journal of Psychosomatic Research*, 67(5), 403–415. <https://doi.org/10.1016/j.jpsychores.2008.12.012>
- Pappa, E., Kontodimopoulos, N., & Niakas, D. (2005). Validating and norming of the Greek SF-36 health survey. *Quality of Life*

- Research*, 14(5), 1433–1438. <https://doi.org/10.1007/s11136-004-6014-y>
- Robb, C., Lee, A., Jacobsen, P., Dobbin, K. K., & Extermann, M. (2013). Health and personal resources in older patients with cancer undergoing chemotherapy. *Journal of Geriatric Oncology*, 4(2), 166–173. <https://doi.org/10.1016/j.jgo.2012.12.002>
- Schwartz, R. M., Ornstein, K. A., Liu, B., Alpert, N., Bevilacqua, K. G., & Taioli, E. (2019). Change in quality of life after a cancer diagnosis among a nationally representative cohort of older adults in the US. *Cancer Investigation*, 37(7), 299–310. <https://doi.org/10.1080/07357907.2019.1645160>
- Sultan, A., Choudhary, V., & Parganiha, A. (2017). Worsening of rest-activity circadian rhythm and quality of life in female breast cancer patients along progression of chemotherapy cycles. *Chronobiology International*, 34(5), 609–623. <https://doi.org/10.1080/07420528.2017.1286501>
- Sultan, A., Pati, A. K., Choudhary, V., & Parganiha, A. (2018). Hospitalization-induced exacerbation of the ill effects of chemotherapy on rest-activity rhythm and quality of life of breast cancer patients: A prospective and comparative cross-sectional follow-up study. *Chronobiology International*, 35(11), 1513–1532. <https://doi.org/10.1080/07420528.2018.1493596>
- Taylor, S. E., Welch, W. T., Kim, H. S., & Sherman, D. K. (2007). Cultural differences in the impact of social support on psychological and biological stress responses. *Psychological Science*, 18(9), 831–837. <https://doi.org/10.1111/j.1467-9280.2007.01987.x>
- Usta, Y. Y. (2012). Importance of social support in cancer patients. *Asian Pacific Journal of Cancer Prevention*, 13(8), 3569–3572. <https://doi.org/10.7314/apjcp.2012.13.8.3569>
- Vandyk, A. D., Harrison, M. B., Macartney, G., Ross-White, A., & Stacey, D. (2012). Emergency department visits for symptoms experienced by oncology patients: A systematic review. *Supportive Care in Cancer*, 20(8), 1589–1599. <https://doi.org/10.1007/s00520-012-1459-y>
- Wang, Y., Zhu, L., Yuan, F., Kang, L., Jia, Z., Chen, D., Zhang, P., & Feng, Z. (2015). The relationship between social support and quality of life: Evidence from a prospective study in Chinese patients with esophageal carcinoma. *Iranian Journal of Public Health*, 44(12), 1603–1612. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724733/>
- Ware Jr, J. E., & Sherbourne, C. D. (1992). The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medical Care*, 30(6), 473–483. <https://pubmed.ncbi.nlm.nih.gov/1593914/>. <https://doi.org/10.1097/00005650-199206000-00002>
- Weinert, C. (2003). Measuring social support: PRQ2000. *Measurement of Nursing Outcomes*, 3, 161–172.
- Whoqol Group (1995). The world health organization quality of life assessment (WHOQOL): Position paper from the world health organization. *Social Science & Medicine*, 41(10), 1403–1409. [https://doi.org/10.1016/0277-9536\(95\)00112-K](https://doi.org/10.1016/0277-9536(95)00112-K)
- Williams, G. R., Pisu, M., Rocque, G. B., Williams, C. P., Taylor, R. A., Kvale, E. A., Partridge, E. E., Bhatia, S., & Kenzik, K. M. (2019). Unmet social support needs among older adults with cancer. *Cancer*, 125(3), 473–481. <https://doi.org/10.1002/cncr.31809>
- World Health Organization (2015). *World report on ageing and health*. World Health Organization. <https://apps.who.int/iris/handle/10665/186463>
- Yilmaz, M. S., Piyal, B., & Akdur, R. (2017). Social support and quality of life in a group of cancer patients (Ankara, Turkey). *Turkish Journal of Medical Sciences*, 47(3), 732–737. <https://doi.org/10.3906/sag-1508-42>
- Yoo, G. J., Levine, E. G., & Aviv, C. (2010). Older women, breast cancer, and social support. *Supportive Care in Cancer*, 18(12), 1521–1530. <https://doi.org/10.1007/s00520-009-0774-4>
- Yoo, H., Shin, D. W., Jeong, A., Kim, S. Y., Yang, H. K., Kim, J. S., Lee, J. E., Oh, J. H., Park, E. C., Park, K., & Park, J. H. (2017). Perceived social support and its impact on depression and health-related quality of life: A comparison between cancer patients and general population. *Japanese Journal of Clinical Oncology*, 47(8), 728–734. <https://doi.org/10.1093/jjco/hyx064>