

ORIGINAL PAPER

Social support for cancer patients in Croatia: a cross-sectional study

Vesna Jakobović¹, Andrea Milostić Srb², Ivona Barać^{1,3}, Marko Babić^{1,3}, Nikolina Farčić^{1,2}, Stana Pačarić^{1,2}¹University Hospital Centre Osijek, Osijek, Croatia²Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia³Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

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Abstract

Aim: To examine the level of social support of cancer patients and those undergoing surgery, and to investigate whether there are differences in social support of cancer patients according to the type of cancer. **Design:** A cross-sectional study. **Methods:** The study included 81 participants with colon, breast and lung cancer, of whom 49 (60%) were women and 32 (40%) were men, divided into three groups according to the type of cancer, one month after surgery and oncological treatment. The Multidimensional Scale of Perceived Social Support and data from medical records were used. **Results:** Lung cancer patients rated their health as moderate or poor, whereas those with breast cancer reported their health as very good or good (χ^2 test, $p = 0.003$). Participants with colon cancer rated social support from family (Kruskal–Wallis test, $p = 0.02$) and social support from friends (Kruskal–Wallis test, $p = 0.005$) significantly better than patients with lung or breast cancer. **Conclusion:** Overall social support was rated significantly better by colon cancer patients compared to those with lung or breast cancer. Social support plays an important role in the treatment of cancer patients, and the study findings could help to develop personalized interventions and support programs for these individuals.

Keywords: breast cancer, cancer patients, colon cancer, lung cancer, social support.

Introduction

Cancer represents a significant health challenge today due to the continuous rise in the number of patients. In the Republic of Croatia, an increase in cancer patients is observed every year. In 2022, the estimated incidence rate of cancer in Croatia was 638.3 cases per 100,000 population, which is 12% higher than the EU average (Organisation for Economic Co-operation and Development [OECD], 2025). In Croatia, cancer ranks as the second leading cause of death, after cardiovascular diseases. The highest proportion of new cancer cases among men is prostate cancer, which accounts for 21% of all cases, compared to 23% in the EU. Colon cancer follows at 17%, with lung cancer close behind at 16%, both slightly above the EU average. Among women, breast cancer has the highest incidence, accounting for 26% of cases, which is lower than the EU average of 30%. Colon cancer ranks second at 13%, followed by lung cancer

at 9%, with both rates close to the EU figures (OECD, 2025).

The adoption of multidisciplinary treatment approaches has transformed their status, and they are now considered chronic diseases. New treatment approaches have significantly prolonged the lives of patients, but they have also created new challenges for both patients and their families. Cancer diagnosis and the treatment process are periods of great concern for the patients and their families. While most cancer patients adjust well to their diagnosis and treatment, some experience initial difficulties such as low mood, vulnerability, sadness and anxiety. These feelings can later evolve into incapacity, weakness, depression, trauma, panic and concerns about their very existence (Yi & Syrjala, 2017). Knowing that they can rely on the support and assistance of family and friends is crucial in managing the stress associated with the diagnosis and treatment of the disease. Therefore, strengthening institutional social support is one of the challenges for healthcare professionals in the fight against this disease (Gudina et al., 2021).

Social support is understood as the perceived network of family, friends, neighbors and community

Corresponding author: Nikolina Farčić, Department of Nursing and Palliative Medicine, Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Crkvena street 21, 31 000 Osijek, Croatia; email: nfarctic@fdmz.hr

members who provide psychological, physical and financial assistance to cancer patients during times of need. Research indicates that social support positively influences the physical health, emotional well-being and survival rates of cancer patients (Corovic et al., 2023; Filipiak, 1999). However, excessive support in an adult's life can negatively affect their activity and lead to a loss of independence (Pasek et al., 2017). Research indicates that enhancing social support enables patients to adopt a healthier approach to treatment and recovery (de Moor et al., 2013; Roczniowska et al., 2022). Social support acts as a moderator, positively influencing psychological functioning even after stressful events have occurred (Roczniowska et al., 2022). Social support that comes from family, friends, partners and healthcare professionals is a prerequisite for a better quality of life and a reduction in perceived stress (Reblin & Uchino, 2008; Ruiz-Rodríguez et al., 2021; Shiba et al., 2016). Social support can provide cancer patients with a sense of hope and faith in treatment, which can improve their ability to cope with the challenges of cancer and their sense of control over their lives. These findings can be incorporated into evidence-based medical practice, potentially leading to a significant improvement in the quality of nursing and medical care for cancer patients (Pasek et al., 2021).

Aim

The present study aimed to assess the level of social support among cancer patients, and to determine whether differences in social support exist based on the type of cancer.

Methods

Design

A cross-sectional study was conducted from February 2 to April 31, 2024 among cancer patients in Croatia.

Sample

The participants were cancer patients selected according to the order of their arrival for follow-up at a plastic, thoracic and abdominal surgery outpatient clinic of a surgery department. They were approached within a specified three-month period, one month after undergoing cancer surgery. A convenience sampling method was used to enroll patients in the study. The participants were categorized into three groups: the first included patients with breast cancer, the second comprised patients with lung cancer and the third consisted of patients with colon cancer. Out of 99 identified

patients, ten refused to participate and eight submitted incomplete questionnaires. Inclusion criteria were as follows: participants undergoing surgery for breast, lung or colon cancer (histopathological diagnosis of carcinoma, stage I–III); one month after surgery and oncological treatment; age over 18 years of age; understanding the Croatian language and the purpose of the study; consent to participate in the study. Exclusion criteria were expected survival less than one year and past or current mental disorders.

Data collection

The study was carried out following approval from a hospital ethics committee (number: R1-492-7/2024). It was conducted in compliance with ethical principles for research involving human subjects, adhering to the World Medical Association Declaration of Helsinki (2013) and all relevant professional ethical guidelines. All patients were informed about the purpose, topic and objectives of the study and voluntarily agreed to participate. The anonymous survey took 10–15 minutes to complete. After signing an informed consent form, participants autonomously filled out a questionnaire, the Multidimensional Scale of Perceived Social Support (MSPSS) from family, friends and significant other (Zimet et al., 1988). The psychometric properties and convergent validity of the MSPSS have been evaluated in cancer patients (Calderón et al., 2021). In a systematic review of studies on the psychometric properties of non-English versions of the MSPSS, Dambi et al. (2018) analyzed 70 articles covering 22 languages. They recommended that future translations of the MSPSS employ the back-translation method, emphasizing the involvement of multiple translators, harmonization of translations and evaluation by an expert committee (Dambi et al., 2018). For the present study, the instrument was initially selected by the authors and an expert committee comprising an assistant professor and a professor of nursing. The MSPSS was translated into Croatian by two independent translators, who are professors of English at a higher education institution for nursing. Subsequently, an independent English professor not involved in the initial translation performed the back-translation into English. The content of the Croatian version was reviewed and approved by all authors and the expert committee. A pilot test of the Croatian version of the MSPSS scale was conducted with a group of 20 cancer patients. No issues related to cultural differences in the interpretation of the questions were observed. As a result, no revisions of the scale were

necessary. The internal reliability of the instrument was assessed using Cronbach's alpha coefficient. The adapted Croatian version of the MSPSS showed a high level of statistical reliability, with a Cronbach's alpha of 0.952 for the entire scale. The questionnaire consists of 12 questions scored on a scale from 1 to 7, where 1 means that the examinees does not agree with the statement at all, while 7 means that the respondent completely agrees with the statement. The total score ranges from 12 to 84.

Another section of the questionnaire covered the socio-demographic characteristics of the participants including gender, age, marital status, place of residence, level of education and employment status. The last part of the questionnaire was related to clinical variables and included comorbidities, cancer stage, risk factors, treatment and type of surgery as obtained from the patients' medical records.

Data analysis

Categorical data are presented as absolute and relative frequencies. Differences in categorical variables were analyzed using the χ^2 test and, when necessary, Fisher's exact test. The normality of numerical variables was assessed with

the Shapiro–Wilk test. Continuous data are described using the median and interquartile range. The Kruskal–Wallis test (with Conover post hoc test) was used to examine differences in continuous variables across cancer types. All p-values are two-tailed, with a significance level set at $\alpha = 0.05$. Statistical analyses were performed with MedCalc® statistical software version 22.018 (MedCalc Software Ltd, Ostend, Belgium).

Results

The study was conducted with a sample of 81 participants, of whom 23 (28.4%) had colon cancer, 27 (33.3%) had lung cancer and 31 (38.3%) had breast cancer. Forty-nine (60%) participants were women. A significantly higher number of women were diagnosed with breast cancer, while a significantly higher number of men were diagnosed with lung cancer (χ^2 test, $p < 0.001$). Most participants were aged 50 to 65 years, with a significantly higher number of breast cancer patients being aged 35 to 50 years, colon cancer patients being aged 50 to 65 years and lung cancer patients being aged 65 years or older (χ^2 test, $p = 0.03$). Forty-seven (58%) participants were married and 70 (86%) had children (Table 1).

Table 1 Basic characteristics of participants, clinical characteristics of participants, methods of treatment and types of surgery by cancer type (Part 1)

	Number of (%) participants				p-value*
	Colon cancer (n = 23)	Lung cancer (n = 27)	Breast cancer (n = 31)	Total (n = 81)	
Gender					
women	10 (43)	8 (30)	31 (100)	49 (60)	< 0.001 ^a
men	13 (57)	19 (70)	0	32 (40)	
Age					
20–34	0	0	1 (3)	1 (1)	0.03 ^a
35–49	4 (17)	1 (4)	10 (32)	15 (19)	
50–64	14 (61)	14 (52)	14 (45)	42 (52)	
65 and over	5 (22)	12 (44)	6 (19)	23 (28)	
Marital status					
married	14 (61)	15 (56)	18 (58)	47 (58)	0.98 ^a
cohabiting	1 (4)	1 (4)	2 (6)	4 (5)	
divorced	5 (22)	5 (19)	4 (13)	14 (17)	
widowed	3 (13)	5 (19)	5 (16)	13 (16)	
single	0	1 (3.7)	2 (6.5)	3 (3.7)	0.47 ^b
Has children	20 (87)	25 (93)	25 (81)	70 (86)	
Place of residence					
city	16 (70)	15 (56)	23 (74)	54 (67)	0.24 ^b
countryside	7 (30)	12 (44)	8 (26)	27 (33)	

* $p < 0.05$; ^a χ^2 test; ^bFisher's exact test

Table 1 Basic characteristics of participants, clinical characteristics of participants, methods of treatment and types of surgery by cancer type (Part 2)

	Number of (%) participants				p-value*
	Colon cancer (n = 23)	Lung cancer (n = 27)	Breast cancer (n = 31)	Total (n = 81)	
Level of education					
primary school	0	6 (22)	3 (10)	9 (11)	0.11 ^a
high school	15 (65)	18 (67)	17 (55)	50 (62)	
bachelor's degree	6 (26)	3 (11)	8 (26)	17 (21)	
master's degree	2 (9)	0	2 (6)	4 (5)	
PhD	0	0	1 (3.2)	1 (1.2)	
Employment status					
employed	11 (48)	4 (15)	18 (58)	33 (41)	< 0.001 ^a
unemployed	5 (22)	2 (7)	7 (23)	14 (17)	
retired	7 (30)	21 (78)	6 (19)	34 (42)	
Comorbidity					
hypertension	12 (60)	19 (70)	14 (61)	45 (64)	0.31 ^b
diabetes mellitus	3 (15)	0	1 (4)	4 (6)	
other diseases	5 (25)	5 (19)	5 (22)	15 (21)	
hypertension and diabetes mellitus	0	3 (11)	3 (13)	6 (9)	
Stage					
0	4 (20)	0	0	4 (5)	< 0.001 ^a
I	11 (55)	6 (22)	4 (15)	21 (28)	
II	4 (20)	4 (15)	13 (48)	21 (28)	
III	0	14 (52)	10 (37)	24 (32)	
Risk factor					
smoking	13 (57)	18 (67)	15 (50)	46 (58)	0.45 ^a
alcohol consumption	3 (13)	6 (22)	4 (13)	13 (16)	0.64 ^a
family history of cancer	13 (57)	18 (67)	22 (71)	53 (65)	0.54 ^a
Therapy					
chemotherapy	3 (18)	4 (21)	7 (28)	14 (23)	0.07 ^a
radiotherapy	1 (6)	0	1 (4)	2 (3)	
hormone therapy	1 (6)	0	5 (20)	6 (10)	
surgery + chemotherapy	10 (59)	15 (79)	7 (28)	32 (52)	
surgery + hormone therapy	1 (5.9)	0	2 (8)	3 (4.9)	
surgery + radiotherapy	1 (6)	0	1 (4)	2 (3)	
surgery + chemotherapy + radiotherapy	0	0	2 (8)	2 (3)	
Type of surgery					
open surgery	17 (74)	24 (89)	29 (100)	70 (89)	0.006 ^b
laparoscopy	6 (26)	3 (11)	0	9 (11)	

* $p < 0.05$; ^a χ^2 test; ^bFisher's exact test

In terms of educational level, 50 (62%) participants had a high school diploma. Thirty-three (41%) were employed, significantly more in the breast cancer group, while retirees were significantly more in the lung cancer group (χ^2 test, $p < 0.001$). The most common comorbidity was hypertension, affecting 45 (64%) patients. There were significantly more open surgeries for lung and breast cancer and laparoscopies for colon cancer (Fisher's exact test, $p = 0.006$) (Table 1).

Social support differed significantly with respect to marital status (Kruskal–Wallis test, $p = 0.03$) and children (Kruskal–Wallis test, $p = 0.009$). Social support also differed significantly depending on cancer stage (Kruskal–Wallis test, $p = 0.02$). Type of surgery and treatment complexity did not affect social support (Table 2).

The participants assessed their health status, and it was observed that a significantly larger proportion of lung cancer patients rated their health as moderate or poor, whereas breast cancer patients tended to rate their health as very good or good (χ^2 test, $p = 0.003$) (Table 3).

Table 2 Differences in social support according to demographic characteristics, clinical characteristics of participants, method of treatment and type of surgery

Social support (total)	Median interquartile range	p-value*	Social support (total)	Median interquartile range	p-value*
Gender			Stage		
women	73 (59–84)	0.85†	0	62 (46–79)	0.02
men	72 (57–84)		I	84 (71–84)	
Age			II	64 (57–84)	
20–34	77 (62–83)	0.32	III	63 (56–80)	
35–49	77 (61–82)		Risk factors		
50–64	71 (57–84)		smoking		
65 and over	72 (57–84)		yes	72 (56–83)	0.05
Marital status			no	80 (62–84)	
married	80 (62–84)	0.03	alcohol consumption		0.004
cohabiting	63 (42–82)		yes	59 (51–71)	
divorced	61 (53–73)		no	77 (61–84)	
widowed	72 (56–84)		family history of cancer		0.37
single	54 (49–68)		no	76 (60–84)	
Has children			yes	72 (58–84)	
yes	74 (61–84)	0.009	Therapy		0.54
no	59 (49–74)		chemotherapy	69 (59–84)	
Place of residence			radiotherapy	58 (39–62)	
city	69 (57–84)	0.24	hormone therapy	81 (68–84)	
countryside	74 (63–84)		surgery + chemotherapy	79 (59–84)	
Level of education			surgery + hormone therapy	81 (74–84)	
primary school	80 (60–84)	0.88	surgery + radiotherapy	81 (59–84)	
high school	68 (55–84)		surgery + chemotherapy +	68 (44–79)	
bachelor's degree	74 (63–83)		radiotherapy		
master's degree	72 (56–84)		Comorbidity		0.54
PhD	78 (63–84)		hypertension	71 (60–84)	
Employment status			diabetes mellitus	68 (47–83)	
employed	73 (60–84)	0.92	other diseases	81 (64–84)	
unemployed	76 (58–83)		hypertension	69 (54–83)	0.78
retired	72 (57–84)		and diabetes mellitus		
			Type of surgery		
			open surgery	73 (59–84)	0.78
			laparoscopy	74 (60–84)	

*Kruskal–Wallis test; †Mann–Whitney U test

Table 3 Self-assessment of health status according to type of cancer

	Number of (%) participants				p-value*
	Colon cancer (n = 23)	Lung cancer (n = 27)	Breast cancer (n = 31)	Total (n = 81)	
Self-assessment of health					
very good	4 (17)	2 (7)	8 (27)	14 (18)	0.003 ^a
good	9 (39)	5 (19)	15 (50)	29 (36)	
moderate	10 (43)	15 (56)	7 (23)	32 (40)	
poor	0	5 (19)	0	5 (6)	

* $p < 0.05$; ^a χ^2 test

In the domain of social support from family, most participants (56; 69%) strongly or very strongly agreed with the statement that their family gave them the necessary emotional help and support.

In the domain of social support from friends, 33 (41%) participants agreed that they had friends with whom they could share their joys and sorrows or with whom they could talk about their problems.

In the domain of social support from another person, 56 (69%) participants agreed or strongly agreed that there was a special person in their life who was there to help when needed, while 50 (62%) participants

agreed or strongly agreed that there was a special person with whom they could share their joys and sorrows (Table 4).

Table 4 Subjectively assessed social support

	Number of (%) participants							Total
	1	2	3	4	5	6	7	
Support from family								
My family really tries to help me.	0	0	0	3 (4)	25 (31)	2 (2)	51 (63)	81 (100)
I get the emotional help and support I need from my family.	0	0	0	4 (5)	21 (26)	3 (4)	53 (65)	81 (100)
I can talk about my problems with my family.	0	0	0	3 (4)	26 (32)	3 (4)	49 (60)	81 (100)
My family is willing to help me make decisions.	1 (1)	0	0	5 (6)	24 (30)	1 (1)	50 (62)	81 (100)
Support from friends								
My friends really try to help me.	0	0	4 (5)	16 (20)	21 (26)	9 (11)	31 (38)	81 (100)
I can count on my friends when things go wrong.	1 (1)	0	6 (7)	18 (22)	18 (22)	6 (7)	32 (40)	81 (100)
I have friends with whom I can share my joys and sorrows.	1 (1)	0	5 (6)	12 (15)	21 (26)	9 (11)	33 (41)	81 (100)
I can talk about my problems with my friends.	1 (2)	1 (2)	1 (2)	11 (18)	8 (13)	5 (8)	33 (55)	60 (100)
Support from significant other								
There is a special person who is around when I am in need.	0	0	3 (4)	3 (4)	19 (23)	8 (10)	48 (59)	81 (100)
There is a special person with whom I can share my joys and sorrows.	0	0	2 (2)	8 (10)	21 (26)	8 (10)	42 (52)	81 (100)
I have a special person who is a real source of comfort to me.	0	0	2 (2)	8 (10)	24 (30)	9 (11)	38 (47)	81 (100)
There is a special person in my life who cares about my feelings.	0	0	1 (1)	7 (9)	20 (25)	6 (7)	47 (58)	81 (100)

1 – very strongly disagree; 2 – strongly disagree; 3 – disagree; 4 – neutral; 5 – agree; 6 – strongly agree; 7 – very strongly agree

The median score for the entire social support scale was 73 (interquartile range from 59 to 84), ranging from a minimum of 39 to 84. Scores for social support from friends were somewhat lower than those for family support and support from another person.

Patients with colon cancer rated social support from family (Kruskal–Wallis test, $p = 0.02$) and support

from friends (Kruskal–Wallis test, $p = 0.005$) significantly higher than patients with lung and breast cancer. Overall social support was also rated significantly better by colon cancer patients than by lung or breast cancer (Kruskal–Wallis test, $p = 0.03$) (Table 5).

Table 5 Ratings of individual domains and the overall scale of social support in relation to the type of cancer

	Median (interquartile range)				p-value*
	Colon cancer (n = 23)	Lung cancer (n = 27)	Breast cancer (n = 31)	Total (n = 81)	
Social support from family	28 (27–28)	26 (21–28)	24 (20–28)	27 (21–28)	0.02 ^b
Social support from friends	28 (20–28)	20 (15–28)	15 (14–28)	21 (15–28)	0.005 ^b
Social support from significant other	28 (23–28)	25 (21–28)	25 (20–28)	26 (20–28)	0.20 ^a
Social support – total	82 (72–84)	69 (57–84)	63 (55–82)	73 (59–84)	0.03 ^b

* $p < 0.05$; ^aKruskal–Wallis test (Conover post hoc test); ^bat a level of $p < 0.05$, significant difference between colon cancer and lung / breast cancer

Discussion

The present study indicates that lung cancer patients perceived their health to be moderate or poor, while breast cancer patients perceived their health as very good or good. The results on social support are similar to those in other studies (Calderón et al., 2021). Cancer survivors in this study reported relatively high levels of social support, scoring 73 out of 84 points. Family provided the highest level of support, followed by significant others, while support from friends was the lowest. However, Lee and Park (2020) reported lower social support scores of 62 out of 84. Nevertheless, similar to the present study, family provided the highest level of support, followed by significant others, with friends providing the least support. Overall social support was rated significantly better by respondents with colon cancer compared to those with lung cancer or breast cancer. Our findings emphasize the importance of social support in assisting individuals, particularly cancer patients. Social support provides cancer patients with care and attention to help them cope with the fear and anxiety associated with their illness, while at the same time easing the challenges they encounter at different stages of the disease (Almuhtaseb et al., 2021). Patients expect support from spouses, family and friends during treatment to reduce stress and anxiety related to the disease and their condition during treatment and recovery. Both cross-sectional and prospective studies suggest a positive correlation between perceived social support and psychological adjustment following cancer treatment. The evidence supporting the relationship between social support and cancer progression is robust (Usta, 2012). Baik and Lim (2011) examined social support at various stages of breast and gynecological cancer survival and found that patients in the acute stage received relatively higher levels of social support. However, no significant differences in social support were observed at different stages, contrary to the findings of the present study. While there were no significant differences in the study by Lee and Park (2020), Baik and Lim (2011) reported that survivors' perceived social support decreased as they progressed from the acute stage to the prolonged stage. Other studies have found that while patients undergoing treatment receive strong support from healthcare professionals and their families, this support and attention from both healthcare providers and those around them diminishes once treatment is completed (Alfano & Rowland, 2006; Kwon & Yi, 2012). Treatment procedures and treatment complexity did not affect social support in this study.

Previous studies have identified gender differences in social support, with women reporting higher levels of support than men (Dong & Liu, 2017; Rutkowski et al., 2018), which differs from the findings of the present study. These differences may stem from varying coping styles, as women tend to rely more on emotional support, which is often provided by friends (Costa-Requena et al., 2015). Additionally, some researchers have suggested that younger individuals seek more support from their peers compared to older adults (Rutkowski et al., 2018). In young people with cancer, this heightened need for social support may be attributed to the greater psychological impact of their diagnosis, treatment and long-term effects (Dong & Liu, 2017; Oh et al., 2020; Rutkowski et al., 2018). In the present study, the average age of the patients was between 50 and 56 years old. In their study conducted in Saudi Arabia, Da'ar et al. (2023) found that cancer patients aged 50 years or younger were significantly more likely to face social challenges due to their diagnosis and treatment than older patients. The study suggests that age-related differences in cancer-related distress may be attributed to variations in treatment. A patient's age, type of treatment, support received and other experiences during treatment and recovery can all influence how they feel and cope with cancer (Da'ar et al., 2023). However, some studies suggest that cancer patients benefit from support provided by healthcare professionals (Eriksson & Lauri, 2000). This support is particularly valuable in addressing psychological challenges, such as anxiety and depression, that arise from the illness. Cognitive support for cancer patients involves providing information about the disease, its diagnosis, prognosis, as well as treatment options and their potential side effects. It is important to highlight the significance of the information patients receive through support groups for their overall treatment and adaptation to the new circumstances (Eriksson & Lauri, 2000). The results of a study by Korotkin et al. (2019) showed that cancer patients expressed their expectations for support, which were related to the need for companionship, empathy, support and home care, informational support and the same treatment and help when visiting a doctor.

Research involving women with breast cancer has shown that the support of their husbands plays a crucial role in their adjustment to the disease and treatment. Support for women can reduce their stress levels, improve their compatibility and promote the quality of sexual relations, which can reduce patients' problems with mental images of themselves after surgery and oncological treatment and thus

prevent depression (Borstelmann et al., 2015; Fang et al., 2015).

Environmental support positively impacts physical functioning, psychological well-being and the ability to adjust to living with cancer. A study conducted in Finland found that breast cancer patients who received strong social support had a lower risk of experiencing negative changes in their quality of life during the early stages of treatment (Salonen et al., 2013). Emotional support was mostly provided to patients by their spouse, partner, children, siblings or friends. The women stated that the support and trust of friends, colleagues and healthcare workers were important to them; they also emphasized immediate family members as the people from whom they received the most essential form of support. Finally, they stated that physical presence and knowing that someone was thinking of them was very important to them (Fang et al., 2015; Salonen et al., 2013). However, the results of the study by Salonen et al. (2013) show that the perception of social support decreases in breast cancer patients after six months.

Patients with lung cancer are a unique group that faces a high level of stigma associated with their illness. They often experience symptoms of depression and anxiety, which contribute to a lower quality of life compared to patients with other types of cancer. Additionally, they have a shorter survival time following diagnosis and endure a lengthy, challenging treatment process that further impacts their mental health. Many of these factors can be positively influenced by increasing social support, which could lead to better treatment outcomes during the final months or years of their lives, as quality of life is a key component of treatment success. Furthermore, improving the quality of life of these patients does not require a significant financial investment, as depression can be managed with relatively inexpensive medications or through various support groups, which unfortunately are not yet sufficiently accessible to lung cancer patients (Khue et al., 2019). Disease progression has been shown to be associated with lower emotional social support levels (Chambers et al., 2022). In patients with lung cancer, social support plays a critical role in providing assistance, both on an individual level and within a group context. Research suggests that higher levels of social support, particularly emotional and informational support, help reduce the occurrence of risky behaviors among lung cancer patients (Hofman et al., 2021).

Patients with colon cancer require social support that encompasses both informational and emotional assistance from their closest family members and healthcare providers. They need the opportunity to discuss matters related to their lives and illness, as well as a safe space where they can view their situation from all perspectives. To face and cope with cancer more easily, they need conversations about the disease, information about treatment and adaptation to the new situation. Most patients with a removed tumor or a stoma have symptoms of depression, anxiety and body image disturbance. Research has shown significant differences between groups with and without a stoma in terms of depression, social functioning, body image and sexual functioning (Sharpe et al., 2011). Psychosocial consequences of having a stoma include various difficulties such as sexual problems and reduced social functioning (Lee et al., 2019). To cope with these challenges, colon cancer patients have to make significant physical and psychological adjustments after surgery. Colon cancer patients have been found to have low levels of stoma acceptance. Poor acceptance of a stoma can lead to difficulties in both physical and psychological adaptation, impacting the postoperative stoma duration and the length of hospital stay. The most common intervention for patients with colon cancer is education and the provision of essential information about stoma care. Education is important and yields results if patients are informed about the actual procedure, management of a stoma and side effects prior to their surgery. This results in a shorter hospital stay and earlier acceptance of living with a stoma (Chao et al., 2010; Chou et al., 2012). In the present study, overall social support was rated significantly better by participants with colon cancer than those with lung or breast cancer. This may be explained by the fact that only one month had passed since surgery, and education was a primary focus for patients. Patient education is known to have a positive impact on their perception of quality of life and social support (Faury et al., 2017). However, Haviland et al. (2017) reported that the perception of social support levels decreased in nearly one-third of colon cancer patients observed three, nine, 15 and 24 months after surgery. Families play a vital role in providing social support to cancer patients. In particular, patients seek emotional support to share their suffering and fears, which helps them cope with treatment more easily. Family involvement is crucial in the treatment process, as patients expect their families to be engaged in decision-making from diagnosis to treatment outcomes and adjustment to their new

situation (Fang et al., 2015; Khue et al., 2019; Lee et al., 2019; Salonen et al., 2013; Sharpe et al., 2011). Side effects of oncology therapy, such as pain, nausea, vomiting, dyspnea or diarrhea, make difficult for patients, so they seek emotional support from family and loved ones to help them adapt to their illness, give them some advice and help them make important decisions related to their illness. Patients with social support have been shown to benefit from a protective factor against mortality and morbidity and to experience better psychological adjustment to the disease (Applebaum et al., 2014). In the present study, participants reported having friends with whom they could share their happiness and sadness and with whom they could talk about issues related to their diagnosis and treatment procedures. Our findings are consistent with those of studies conducted with cancer patients who stated that friendship meant a lot to them in their treatment and was the basis for reducing the physical and mental manifestations of their disease. They stated that they felt more comfortable talking with friends than with family members (Cipolletta et al., 2019). The interpretation could be that family members are also affected by the diagnosis and feel stress and fears just like the patient, whereas patients often do not want to further frighten family members by talking about their illness. Patients state that regular meetings with friends give them the opportunity to discuss their problems and share both their sadness and joy, which helps to alleviate feelings of anxiety and depression associated with the disease. When this does not happen on a regular basis, the support feels weaker, which increases anxiety and feelings of loneliness (Cipolletta et al., 2019). Study participants noted that individuals sharing similar experiences with illness and treatment provided them with the most support. Patients have found that social media allow them to connect with people who also have cancer and share their experiences (Sjolander & Ahlstrom, 2012).

Elderly patients are often denied social support due to age, retirement, death of a life partner or some other chronic diseases. The support of another cancer survivor is important because it gives patients hope for treatment. Spirituality and religion are also often part of social support; in religious communities, patients can talk about their illness and prayers give them strength and motivation to continue fighting the disease (National Academies of Sciences, Engineering, and Medicine, 2020; Palmer Kelly et al., 2019). In addition to support from others, patients expect healthcare professionals, such as doctors, nurses / technicians, psychologists, oncologists and other experts, to provide

informational and emotional support in their treatment, based on good communication between them and the professionals. Patients with positive self-esteem and life satisfaction, even in difficult situations, were more likely to perceive emotional and instrumental support. During cancer treatment, those who expressed a need for help and remained free from negative emotions showed an increased need for support (Pasek et al., 2021).

One limitations of this study is that it was conducted at a single medical center over a short period of time, which may have affected the generalizability of the results. The cross-sectional survey design also limits the ability to establish causal relationships between social support and its effects. Additionally, the sample size is relatively small and may not be representative of the larger cancer population. Future research should employ longitudinal designs over longer time periods to further investigate the role of social support.

Conclusion

By cancer type, participants with colon cancer rated social support from family and from friends significantly better than participants with breast and lung cancer.

Based on the results of this study and a review of the literature on social support for cancer patients, it can be concluded that social support plays a crucial role in the treatment process. Lack of social support leads to depression and anxiety; therefore, it is necessary to include psychologists in multidisciplinary teams in order to develop programs at all stages of treatment to enable patients to have a better quality of life and to adapt more easily to the new situation. Along with support from family, friends and loved ones, institutional support is also necessary. To enhance social support for cancer patients, the study findings could inform the development of personalized interventions and support programs.

Ethical aspects and conflict of interest

The study was conducted in accordance with the Declaration of Helsinki and approved by the hospital's Ethics Committee (Number: R1-492-7/2024). The authors declare no conflict of interest.

Funding

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Author contributions

Conception and design (VJ, AMS, IB, MB, NF, SP), data collection (VJ, IB, MB), data analysis and interpretation (IB, MB), manuscript draft (VJ, AMS, SP), critical revision of the manuscript (NF, SP), final approval of the manuscript (VJ, AMS, IB, MB, NF, SP).

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