Association between Perceived Social Support and Psychosocial Adjustment of Geriatric Cancer Patients Undergoing Chemotherapy: A Cross- Sectional Study

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Abstract

Purpose: The study aimed to investigate the association between perceived social support and psychosocial adjustment of geriatric cancer patients undergoing chemotherapy. **Methods:** Two hundred geriatric patients provided consent were interviewed and the data collected using the Psychosocial Adjustment to Illness Scale (PAIS), the Multidimensional Scale of Perceived Social Support (MSPSS), In addition to demographic and clinical data. Data was collected from Kasr Al-Aini Center for Oncology and Nuclear Medicine, Cairo, Egypt after the study protocol was approved (Approval No. 10), August 2019. Correlations using Pearson and Spearman coefficients as well as binary logistic regression were used using The IBM SPSS software package, version 26. **Results**: The psychological distress domain was found to have the highest mean score (14.2 ± 4.5) among the psychosocial adjustment domains, whereas extended family relations were found to have the lowest mean score 6.8 ± 2.09. The study also found that there was a significant negative correlation between the overall scores of the psychosocial adjustment scale and the multidimensional scale of perceived social support ($p < 0.001$). Moreover, a significant negative correlation between the overall scores of the Multidimensional Scale of Perceived Social Support and the following sub- domains of the Psychosocial Adjustment Scale: health care orientation, extended family relations, and psychological distress ($p < 0.001$) was detected. Those with high level of perceived social support were 0.044 times more likely to have high psychosocial adjustment compared to those with low level of perceived social support ($p<0.001$). Females were twice less likely to have high psychosocial adjustments compared to the males. **Conclusion:** Our findings indicate that there is an association between perceived social support and elderly' psychosocial adjustment. In addition, perceived social support is found to be an independent predictor of psychosocial adjustment. Therefore, establishing or strengthening the existing social structures throughout the treatment journey is recommended for elderly cancer patients.

Introduction:

Aging is the primary risk factor for developing cancer, and older adults account for more than 62% of cancer survivors (Siegel et al., 2019). Despite these demographics, geriatric patients are seldom included in clinical trials (Shenoy & Harugeri, 2015). Cancer is a debilitating disease that disrupts many elements of a person's life. Regardless of age, the diagnosis of cancer usually leads to physical and psychological stress; furthermore, the special needs

of older persons exacerbate the stress of a cancer diagnosis (Dokmeci et al., 2011). Older persons have more chronic conditions, changes in physical and mental function, and a lower physiological reserve than their younger counterparts, making cancer management more physically and emotionally demanding (Kadambi et al., 2020).

Following cancer diagnosis, geriatric patients are more likely to experience anxiety and depression as well as a lower quality of life (Jones et al., 2015). Patients usually experience various levels of stress and emotional concerns; disturbance of life plans, fear of death, alterations in appearance and self-confidence, and changes in social roles and lifestyle are just a few examples. (Kadambi et al., 2020). In this context, being diagnosed with a potentially fatal and life-threatening disease such as cancer, necessitates physical and psychosocial adaptation and adjustment to a new situation (Flanagan & Holmes, 2000). It has been observed from the literature that, low-income Southeast Asian nations' health policy priorities are much more focused on patient access to anticancer therapies, while the psychological aspect of care is typically overlooked in management strategies (Seiler & Jenewein, 2019). The living standards of this Southeast Asian nations' are similar to those in Egypt(World Bank national accounts data). In addition, we should mention the modest number of studies that have investigated psychological profile of cancer patients.

Psychosocial adjustment to illness is affected not only by the disease itself, but more so by its treatment. Chemotherapy is an essential modality of cancer management affecting the patient's health-related quality of life (HRQoL) in both positive and negative ways. Positively by easing manifestations and delaying functional decline, and negatively through the impact of its related physical and psychological side effects (Ahmed-Lecheheb & Joly, 2016; Luckett et al., 2010; Tanvetyanon et al., 2007). These side effects consequently increase the cost of treatment and negatively affect treatment adherence (Bloechl-Daum et al., 2006; Couper et al., 2013). According to the previous studies, presence of distress among geriatric cancer patients continues to persist long after cancer treatment is completed, as indicated by reports of significant distress, depression, anxiety, and low quality of life (Clough-Gorr et al., 2007; Deimling et al., 2017; Krok-Schoen et al., 2018; Robb et al., 2013). Adaptation to the changes and distress from cancer and its treatment should be enhanced in the early stages of intervention for better prognosis (Boscaglia et al., 2005).

Social support is often seen as assistance given to someone who is stressed or in a tough circumstance by individuals around him, and it is one of the important components of psychosocial adjustment to disease (Flanagan & Holmes, 2000). The National Cancer Institute's Dictionary of Cancer Terms defines social support as "a network of family, friends, neighbors, and community members that is available in times of need to give psychological, physical, and financial help" (National Cancer Institute [NCI]). Much of the research literature has acknowledged the direct positive impact of social support in reducing cancer morbidity and mortality through its beneficial impact on one's physical and mental well-being. Social support meet vital psychosocial needs such as love, affection, self-esteem, and sense of belonging (Ayaz et al., 2008; Ikeda et al., 2013). However, because of life events like retirement and widowhood, older persons endure a decline in their social support structure, which leads to isolation and loneliness. Hence, older adults' emotional response to a diagnosis of cancer may be compounded (Utz et al., 2002).

Recognizing the contribution of strong social support toward a positive adjustment to the disease experience and identification and reinforcement of social support networks will help patients in coping with their problems and maintaining their welfare (LaRocca & Scogin, 2015). From diagnosis to survivorship, adequate social support is required to handle the abrupt cancer-related life changes and emotional reactions(Huang & Hsu, 2013). Social support usually facilitates the process of handling stressful events and helps patients adjust to their situation, facilitates their recovery, enhances their transition to medical treatment, improves their overall quality of life, and even prolongs their lifespan (Rizalar et al., 2014).

Research in North America and Europe has provided a lot of the data supporting the preventive effects of social support on cancer psychosocial morbidity and mortality (Ayaz et al., 2008; Ikeda et al., 2013). To our knowledge, no study devoted exclusively to the social support and psychosocial adjustment of Egyptian and North African geriatric cancer patients has been published to date. Darweesh (2017) evaluated the psychological status and quality of life of 150 Egyptian cancer patients at Assiut university hospital, but this is not the same variables addressed in our study. The current study aimed to investigate the association between perceived social support and the psychosocial adjustment of geriatric cancer patients undergoing chemotherapy.

Research question

Is there an association between perceived social support and the psychosocial adjustment of geriatric cancer patients undergoing chemotherapy?

Method:

Ethical consideration

The study was conducted according to the guidelines of the Declaration of Helsinki, and the protocol was approved by the Ethical Committee Review Board of the Faculty of Nursing, Modern University of Technology and Information, Egypt (Approval No. 10), August 2019. Each participant signed a consent form after receiving full information. The following details were included on the consent form: the study title, the contact information for the authors, the study objectives, the participation of the subjects, any possible dangers or discomforts, the potential benefits, and voluntary participation. The confidentiality of the collected data was guaranteed, and participants' identities were preserved.

Study design and participants

A cross-sectional descriptive research design was used in this study, and the study participants were conveniently recruited from Kasr Al-Aini Center for Oncology and Nuclear Medicine, Cairo Egypt. The study inclusion criteria were definitive diagnosis of cancer, age 60 years and older, current treatment with chemotherapy as a first-line treatment, awareness of the participants of their disease, ability of verbal communication, and willingness to participate in the study. Severe and unstable medical and neurological conditions, as well as the use of psychiatric medications in the last month, were the exclusion criteria.

The study sample size was estimated using Raosoft online software since there were around 380 geriatric patients admitted to the study settings in the last year. The power analysis revealed a sample size of 192 participants, which was increased to the nearest round figure of 200 geriatric patients receiving chemotherapy. The confidence level was 95%, the margin of error was 5%, and the response distribution was 50%.

Measured outcomes:

The main variables measured in this study were perceived social support and psychosocial adjustment. To measure these variables, the authors utilized two standardized instruments. The first one used was the Psychosocial Adjustment to Illness Scale—Self Report (PAIS), developed by Derogatis and Derogatis (1990). This tool is used to assess the impact of a current disease on the respondent's ability for psychosocial adjustment. It is composed of 46 questions divided into seven domains: health care orientation (8 items), vocational environment (6 items), domestic environment (8 items), social environment (6 items), extended family relations (5 items), sexual relationships (6 items), and psychological distress (7 items). Each question is given a score on a Likert scale that ranges from zero to three, where 0 indicates the greatest adjustment to an illness and 3 denotes poorer adjustment. The total score of the scale is 138. This scale's original version was translated into Arabic language for this study, and its validity and reliability were measured. Cronbach's alpha was used to assess the reliability of this scale, and it revealed a high level of internal consistency (α=0.97).

The second instrument used in this study was the previously translated and validated Arabic version of the Multidimensional Scale of Perceived Social Support (MSPSS) by Merhi and Kazarian (2012) from the original instrument by Zimet et al. (1990). This scale is widely used to assess perceived social support from friends, family, and significant others using 12 statements on a 7-point Likert scale, (from 1 = very strongly disagree to 7 = very strongly agree). The higher the obtained score, the greater the perceived social support.

In addition to the previous two instruments, demographic and clinical data interview schedule was constructed based on a relevant literature review, and it included questions related to age, sex, marital status, etc., along with questions about the disease status and the received treatment modality.

Data collection procedure

Before the actual conduction of the study, a pilot study was done on 20 geriatric patients at Kasr Al-Aini Center for Oncology and Nuclear Medicine and those patients were excluded from data analysis. The researchers interviewed the eligible participants undergoing chemotherapy individually after obtaining their informed consent at the previously mentioned settings. Uninterested participants were excluded from the study (18 geriatric patients refused to participate). The researchers used to introduce themselves, provide detailed information about the study and take measures to provide a suitable setting for collecting the necessary information's from the elderly patients, such as maintaining a comfortable room temperature and ensuring that there was enough

light and no noise. Patients' interviews were done after coordination with the unit head nurses. The interview time ranged from 30 to 40 minutes. The data was collected between October 2019 and December 2020.

Statistical Analysis

The IBM SPSS software package, version 26 (Armonk, NY: IBM Corp, 2019), was used to analyze the data. The Kolmogorov–Smirnov test was used to ensure that the data was of normal distribution. Quantitative variables were described using ranges, means, and standard deviations, while qualitative variables were described using numbers and percentages. The P values were deemed to be significant at the level of ≤0.05. Furthermore, the correlation between two normally distributed quantitative variables was determined using the Pearson coefficient, while the correlation between two abnormally distributed quantitative variables was determined using the Spearman coefficient. To compare between two groups, the Mann–Whitney U test was used. When comparing more than two groups, the Kruskal–Wallis test was used. Binary logistic regression analysis was performed. Crude odds ratio and adjusted odds ratio were reported. The perceived social support scale was dichotomized so that scores of 60.55 (the mean score of the participants) and below were classified as perceived low level of social support, while scores of 60.55 and higher were classified as perceived high level of social support. The psychosocial adjustment was also divided into two categories: high and low levels of adjustment. Scores equal to or below 54.16 (the mean score of the participants) were labelled as high level of adjustment, while those above the mean score were labelled as low level of adjustment. In binary logistic regression model, we controlled the variable sex, because the other variables were found to be not significant at alpha equal to 0.05.

Results:

Two hundred older participants provided consent and were involved in the current study, with a mean age of 67.01±4.94 years. Out of them, 61.0% were males, 63.5% were married, and almost one-third of them were illiterate. Nearly two-thirds of the participants were skilled workers before retirement. Brain tumor was the highest cancer type reported by the participants (26.0%), followed by breast, lung, and liver cancers (17.5%, 16.0%, and 16.0%, respectively). The majority of the studied participants (84.0%) had different types of associated comorbidities,

with more than one-half of the total participants having diabetes mellitus and nearly the same percentage having hypertension. More than one-quarter of the studied participants (28.0%) were diagnosed with cancer for less than 6 months, while 54.0% of them had cancer from 6 months to less than 1 year, with a mean duration of 6.22±2.94 months. Regarding the duration of treatment with chemotherapy, 45.0% of the studied elders were treated with chemotherapy for 15 weeks or more, with a mean duration of 8.16±5.59 weeks, and nearly one-half of the subjects received four or more sessions of chemotherapy. Fifty-two percent of the older adults considered their siblings as their significant others as they accompanied them to the hospital and performed all the caregiving tasks. **Table 1**.

Figure 1 showed mean scores of the Psychosocial Adjustment to Illness Scale subdomains. The psychological distress domain was found to have the highest mean score (14.2±4.5) whereas Extended family relations was found to have the lowest mean score 6.8 ± 2.09.

Figure 2 illustrated the relationship between perceived social support and psychosocial adjustment of the participants. It was found that there was a significant negative correlation between the overall scores of the psychosocial adjustment scale and the multidimensional scale of perceived social support (p<0.001).

Table 2 displays the correlation between the scores of the Multidimensional Scale of Perceived Social Support and those of the Psychosocial Adjustment to Illness Scale for the studied elders. There was a significant negative correlation between the overall scores of the Multidimensional Scale of Perceived Social Support and the following sub- domains of the Psychosocial Adjustment Scale: health care orientation, extended family relations, and psychological distress. Similarly, a significant negative correlation was found between the overall scores of the Psychosocial Adjustment Scale and the Multidimensional Scale of Perceived Social Support (p <0.001).

A statistically significant difference was found between males and females regarding their adjustment where the males' mean score was lower (53.4± 5.5), which indicates better adjustment to

illness. Moreover, a statistically significant relationship was detected between the education level of the studied elders and their psychosocial adjustment to illness and social support (P=0.021 and 0.030, respectively). Unsurprisingly, the duration of chemotherapy treatment affected psychosocial adjustment and social support, as a significant relation was shown between the duration of therapy and the mean scores of the Psychosocial Adjustment Scale (P=0.004) and the Social Support Scale (p=0.003); elders who underwent chemotherapy for less than 5 weeks had more perceived social support (64.12±18.33). **Table 3**.

Table 4 revealed that, those having high level of perceived social support was 0.044 times more likely to have high psychosocial adjustment compared to those with low level of perceived social support (p<0.001). In this Binary logistic regression model, we controlled the variable sex, because the other variables were found to be not significant at alpha equal to 0.05. Upon adjustment for sex, those with high level of perceived social support were 0.035 times more likely to have high psychosocial adjustment compared to those with low level of perceived social support (p<0.001). Furthermore, females were twice less likely to have high psychosocial adjustments compared to the males.

Table 1. Sociodemographic and clinical data of the geriatric patients (N = 200).

Sociodemographic and clinical data	No.	%
Sex		
Male	122	61.0
Female	78	39.0
Age (years)		
60 –	178	89.0
75 –	22	11.0
Mean ± SD	67.01 ± 4.94	
Education level		
Illiterate	66	33.0
Literate	55	27.5
Basic education	29	14.5
Secondary education	37	18.5
University education	13	6.5
Marital status		
Married	127	63.5
Widow	63	31.5
Divorced	8	4.0
Single	2	1.0
Work before retirement		
Skilled worker	132	66.0
Employee	47	23.5
Housewife	21	10.5
Current work		
No work	99	49.5
Skilled worker	93	46.5
Employee	8	4.0
Monthly income		
Not enough	154	77.0
Enough	46	23.0
Cancer type*		
Brain tumor	52	26.0
Breast cancer	35	17.5
Lung cancer	32	16.0
Liver cancer	32	16.0
Prostate cancer	21	10.5
Bladder cancer	13	6.5
Ovarian cancer	9	4.5
Leukemia	8	4.0
Comorbidity*		
No comorbidity	32	16.0
Diabetes mellitus	110	55.0
Hypertension	109	54.5
Heart disease	58	29.0
Kidney disease	44	22.0
Gastrointestinal tract (GIT) disorders	20	10.0
Blood disorders	15	7.5
Musculoskeletal disorders	13	6.5
Respiratory disorders	11	5.5

Table 1. Sociodemographic and clinical data of the geriatric patients (N = 200), continued.

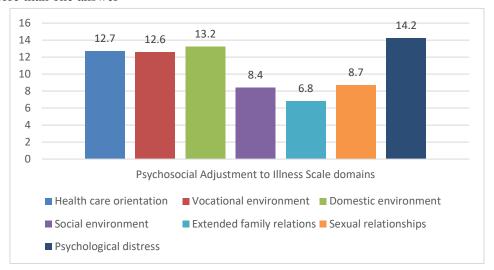| Sociodemographic and clinical data	No.	%
Duration of cancer (in months)		
<6	56	28.0
6-	108	54.0
12 +	36	18.0
Mean ± SD	6.22 ± 2.94	
Duration of chemotherapy treatment (in weeks)		
<5	23	11.5
5-	29	14.5
10-	58	29.0
15 +	90	45.0
Mean ± SD	8.16 ± 5.59	
Number of chemotherapy sessions taken		
1 session	15	7.5
2 sessions	37	18.5
3 sessions	47	23.5
4 or more sessions	101	50. 5
Mean ± SD	2.57 ± 0.97	
Significant other		
Siblings	105	52.5
Spouse	37	18.5
Brother	22	11.0
Formal caregiver	15	7.5
Sister	14	7.0
Friend	7	3.5

*More than one answer

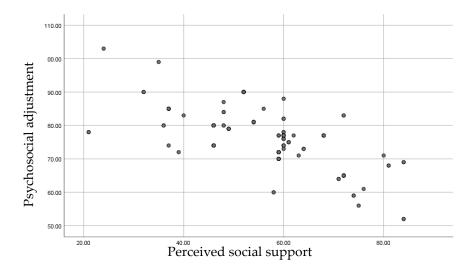**Figure 1:** Mean scores of the Psychosocial Adjustment to Illness Scale subdomains

Figure 2: Relationship between perceived social support and psychosocial adjustment.

Table 2. Correlation between the Multidimensional Scale of Perceived Social Support scores and the Psychosocial Adjustment to Illness Scale scores for the studied elders.

Psychosocial Adjustment	Multidimensional Scale of Perceived Social Support	
	r_s	P
Health care orientation	-0.420[*]	<0.001[*]
Vocational environment	-0.008	0.905
Domestic environment	0.078	0.269
Social environment	0.118	0.095
Extended family relations	-0.367[*]	<0.001[*]
Sexual relationships	0.059	0.408
Psychological distress	-0.839[*]	<0.001[*]
Overall Psychosocial Adjustment	**-0.651[*]**	**<0.001[*]**

rs: Spearman coefficient   [*] Statistically significant at p ≤ 0.05

Table 3. Relation between overall scores of Psychosocial Adjustment Scale and Multidimensional Scale of Perceived Social Support and the studied subjects' demographic data.

Demographic data	Overall Psychosocial Adjustment	Multidimensional Scale of Perceived Social Support
	Mean ±SD	Mean ±SD
Gender		
Male	53.4±5.5	62.77 ± 15.04
Female	55.3 ± 5.5	57.07 ± 18.47
MWU(p)	**3911.0* (0.033*)**	MWU =4191.00 (0.154)
Age (years)		
60–75	54.3±5.7	60.42 ± 16.85
75+	52.7±4.0	61.62 ± 15.30
MWU(p)	**1485.0 (0.064)**	MWU =1927.50 (0.905)
Education level		
Illiterate	53.9±4.9	58.16 ± 19.43
Literate	53.9±4.7	59.32 ± 14.15
Basic education	57.8±5.9	60.97 ± 12.48
Secondary education	52.9±6.7	67.12 ± 18.03
University education	52.5±5.6	58.23 ± 11.68
H (p)	**11.544* (0.021*)**	**H=10.724* (0.030)***
Marital status		
Single	54.7±3.6	40.97 ± 8.84
Married	53.5±6.1	62.92 ± 17.31
Divorced	57.8±5.4	56.25 ± 16.91
Widow	54.9±4.0	56.94 ± 14.43
H (p)	**7.598 (0.055)**	**H=12.605* (0.006)***
Work before retirement		
Skilled worker	54.1±5.2	60.45 ± 14.73
Employee	51.2±6.8	66.87 ± 19.09
Housewife	55.8±5.5	58.01 ± 19.95
H (p)	**5.017 (0.081)**	**H= 0.808 (0.668)**
Current work		
Employee	50.7±0.0	65.28 ± 0.0
Skilled worker	52.9±4.7	62.19 ± 15.94
No work	55.6±6.2	58.63 ± 17.79
H (p)	**20.552* (<0.001*)**	**H=1.984 (0.371)**
Monthly income		
Not enough	54.4±5.8	60.43 ± 15.57
Enough	53.2±4.6	60.96 ± 20.04
MWU(p)	**3032.50 (0.138)**	MWU =3425.00 (0.733)
Duration of cancer (months)		
<6	52.8±5.7	62.92 ± 20.30
6 -	54.4±5.4	58.91 ± 16.78
12 +	55.6±5.7	61.77 ± 7.05
H (p)	**3.876 (0.144)**	**H=2.123 (0.346)**
Duration of chemotherapy treatment (weeks)		
<5	52.9±5.7	64.12 ± 18.33
5–	57.4±5.0	60.20 ± 15.53
10–	54.5±4.7	54.24 ± 13.72
15 +	54.3±6.0	62.92 ± 13.82
H (p)	**13.138* (0.004*)**	**H=14.262 (0.003)***
Number of chemotherapy sessions taken		

1 session	54.6±4.9	48.15 ± 16.32
2 sessions	53.8±6.2	64.89 ± 16.26
3 sessions	55.5±5.6	55.67 ± 19.06
4 or more sessions	53.3±3.2	59.91 ± 9.04
H (p)	**2.174 (0.537)**	**H=21.461 (<0.001)***

MWU: Mann–Whitney U test   H: Kruskal–Wallis test   * Statistically significant at $p \leq 0.05$

Table 4. Binary logistic regression for Psychosocial Adjustment to Illness Scale, controlled for sex.

Independent Variable	Crude Estimate		Adjusted Estimate	
	Odds ratio (95% C.I.)	P value	Odds ratio (95% C.I.)	P value
Perceived Social Support				
High	0.044 (0.021, 0.092)	<0.001	0.035 (0.015, 0.079)	<0.001*
Low	1	-	1	-
Sex				
Female	2.05 (1.15, 3.68)	0.015	3.56 (1.56, 8.13)	0.003*
Male	1	-	1	-

* Statistically significant at $p \leq 0.05$

Discussion

The diagnosis of cancer can be life-changing and may entail a myriad of challenges and difficult decisions throughout the treatment process. It has a multifaceted effect as it can impact both the physical and emotional well-being of the individual and their family. Different emotions can arise such as anxiety, depression, a sense of burden, helplessness, and fear (Cope et al., 2018; Overcash et al., 2018). The families of cancer patients remain their strongest, most vital, and most important source of social support, helping them to cope with their physical and psychological problems. Research has shown that, family impacts the cancer patients' physical health, well-being, and survival which has a stronger impact on patient treatment outcomes (Cope et al., 2018; Pfeffer & Salancik, 2019; Seiler & Jenewein, 2019). The support provided to cancer patients by their caregivers can range from gathering information to advise treatment options, dealing with side effects of treatment, organizing medical care, managing financial issues, and offering emotional support to the survivor(Schulz & Eden, 2016).

The current study's findings revealed that among the domains of the Psychosocial Adjustment to Illness Scale, psychological distress had the highest mean score. This was expected as it has been reported in the literature that cancer has a strong psychological impact on patients (Eom et al., 2013; Otto-Meyer et al., 2019; Seiler & Jenewein, 2019). In addition, sociodemographic variables of the studied patients could also be contributing factors that increased the psychological impact for patients with cancer—e.g., most of the recruited patients' age ranged from 60 to less than 70 years, which could be a factor. Kadambi et al. (2020) reported that as people get older, their needs grow, their social networks shrink, and they are more liable to have social support needs that are not being met. Furthermore, patients who were unmarried, had low income and experienced more symptom burden were more negatively affected (Kadambi et al., 2020). On the other hand, another study conducted by Marosi and Köller (2016) reported that there was no clear relationship between older age and psychological adaptation.

In addition to age, another factor that could result in higher psychological distress is diagnosis with a brain tumor (as nearly one quarter of our study subjects were diagnosed

with brain tumor), which might be a leading cause of psychological symptoms as it have more negative psychological effects than any other tumors (Madhusoodanan et al., 2015). Sebastian Otto-Meyer et al. (2019) and Fehrenbach et al. (2021) reported that malignant brain tumors are devastating diseases that cause significant increases in patient depression, anxiety, and distress. Moreover, most of the recruited patients had comorbidities such as diabetes mellitus and hypertension, which could have an impact on psychological status. Having comorbidities could worsen both physical and psychological functioning. Furthermore, the longer duration of the disease could also be a contributing factor influencing the psychological condition, as more than half of the elderly people in this study were diagnosed with cancer for more than 6 months, which will result in more complications from both the disease itself and its treatment. Adding to that, many of studied subjects had low monthly income which was not enough to cover the expenses of cancer treatment. This was in line with the study of Mishra and Saranath (2019) which reported that monthly income was an inverse predictor of hopelessness and helplessness, so it could be a reason that led to the high scores of psychological distress. In addition, another study supported these findings as it reported that psychological status could be affected by marital status, family income, perceived sufficiency of income, and type of disease (Brito et al., 2021).

Females had a significantly worse adjustment to cancer than males, according to the current study. This finding was supported by a study that found females are more susceptible to depression and poor psychological adaptation than males (Jimenez-Fonseca et al., 2018). In the same line, another study about gender differences in cancer-related distress found that female cancer patients were more likely than male to experience psychosocial problems such as family problems, changes in appearance, and sexuality issues (Koyama et al., 2016). In congruence with the later study's findings, our study further found that the second most reported type of cancer among the studied participants was breast cancer which can explain why females had poorer adjustment in comparison to males due to the body disfigurement and the sexual problems that the women may had in their lives after mastectomy. On the contrary, other studies have shown that

women had more resilience, which is an important protective factor against psychological distress (Hu et al., 2018; Seiler & Jenewein, 2019).

Moreover, the present study proved the significant differences among the different education levels of the studied elderly in connection to both psychosocial adjustment and social support, with the highest adjustment level and perceived social support being noted for educated elders. This denotes that education may be an important predictor of achieving psychosocial adjustment. It is a fact that educated patients might show readiness to learn and better understand knowledge regarding decisions of cancer treatment and the plan of care. Similar to this study, it was reported that high school graduates, those who are employed, and those with a better financial situation have higher social support scores (Avcı & Ayaz-Alkaya, 2021). The present study found that married patients had a significantly high mean score regarding perceived social support in relation to other marital status. This might be because of the support that could be received by the patients from their partners. This was in line with the work of Mishra and Saranath (2019) who reported that marital status is a predictive factor for fighting spirit.

Unsurprisingly, our study revealed a strong negative correlation between perceived social support and the overall psychosocial adjustment scale and sub-domains of the same scale, namely extended family relations, health care orientation, and psychological distress, meaning that the greater the perceived social support was, the higher the psychosocial adjustment of the elderly people was. This was an expected result, as chemotherapy patients' perceptions of social support may motivate them to better cope with stress, resulting in improved psychosocial adjustment. This finding was in congruence with the study of Kadambi et al. (2020) which showed the importance of social support for older adults with cancer; it could be attributed to their level of perceived psychosocial adjustment too.

The findings of Lee et al. (2019) were consistent with the current study, as they found a correlation between social support and health care orientation as well as extended family relationships, social environment, and psychological state. McDonough et al. (2014) reported that social support from family has a positive impact on the adaptation process and

longevity. The correlation of psychosocial adjustment with extended family relations could be because of the traditional culture and the psychological dependence on family in Egypt, which might have an impact on the psychological status of the patients. Furthermore, Hu et al. (2018) in their study reported that social support is an important determinant in enhancing psychological resilience for geriatric lung cancer patients and thus improving their anxiety and depression. Jimenez-Fonseca et al. (2018) reported that inadequate social support can lead to high levels of anxiety and depression. Another study revealed that perceived social support was linked to psychological well-being and quality of life in cancer patients through a direct effect rather than a stress-buffering effect (Yoo et al., 2017).

Our study had some limitations, such as the possibility of memory bias when elderly patients were asked to recall a series of events from the previous days. Another limitation of this study would be the research design, which ought to be longitudinal. Moreover, data had to be collected in a social setting rather than a hospital since this would help researchers better understand older people's psychosocial adjustment processes. In summary, perceived social support can have an influence on the psychosocial adjustment of geriatric patients treated with chemotherapy as it is an important factor that will help the patients to pass this period without psychological problems. Therefore, activating social support networks for those patients could help in their psychosocial adjustment.

Conclusion

According to the current study findings, there was a significant association between the perceived social support and psychosocial adjustment of the geriatric cancer patients receiving chemotherapy. The odds of those having high level of perceived social support were 0.044 times more likely to have high psychosocial adjustment compared to those with low level of perceived social support (p<0.001), and that perceived social support was an independent predictor of psychosocial adjustment in older people. Thus, empowering geriatric cancer patients' social support systems means improving their psychosocial adjustment. It was recommended that geriatric patients receiving chemotherapy should be accompanied by their families/relatives throughout the treatment journey since cancer diagnosis to survivorship. In

addition, geriatric cancer patients should be encouraged to participate in social support groups. Future replication of this study is highly needed using qualitive research design for better understanding of the concept of psychosocial adjustment of the geriatric patients receiving chemotherapy and its related aspects other than social support from a border perspective.

List of Abbreviations: HRQoL: Health-related quality of life; PAIS: Psychosocial Adjustment to Illness Scale—Self Report; MSPSS: Multidimensional Scale of Perceived Social Support; GIT: Gastrointestinal Tract; rs: Spearman coefficient; MWU: Mann–Whitney U test; H: Kruskal–Wallis test.

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