"Social Support as a Mediator between Resilience and Quality of Life among Patients Receiving Chemotherapy for Gastrointestinal Cancer"

Abstract

Background: Gastrointestinal cancer is among the most prevalent malignancies. Cancer statistics indicate that GI cancers represent 38% of all cancer cases. Chemotherapy for GI cancer can significantly impact patients' quality of life. Resilience plays a crucial role in overcoming these challenges. Social support from family and friends can improve patients' ability to handle with the impact of therapy. This study examines the mediating role of social support in the relationship between resilience and quality of life.

Method: A descriptive cross-sectional study design was conducted among 275 GI cancer Patients at three Iraqi governorates with a purposive sampling method, from October 2024 to April 2025. Data was collected used demographic and clinical characteristics questionnaire, Connor-Davidson Resilience Scale (CD-RISC10), European Organization for Research and Treatment of Cancer Quality of Life (EORTC QLQ-F17), and Multidimensional Scale of Perceived Social scales (MSPSS-12). Statistical methods were applied to coding and analyzing the data, and the Hayes Macro Test was employed to test the mediating role.

Results: The mean of resilience was (22.84), reflecting a generally low level of psychological resilience; the mean of perceived social support was (44.62), indicating that more than half of participants had a high level of perceived social support, and the mean general quality of life was (47.4331), reflecting a relatively poor ability to adapt to health conditions. The total effect of resilience on quality of life was (0.7227), the direct effect value was (0.4031), and the indirect effect via social support was (0.3196). Results indicated that social support can partially mediate between resilience and quality of life.

Conclusions: The study showed that social support mediates the relationship between psychological resilience and quality of life. This role improves psychological resilience and, thus, enhances the quality of life for cancer patients.

Keywords: Social Support, Resilience, Quality of Life, Chemotherapy, Gastrointestinal Cancer

Introduction

Gastrointestinal (GI) cancers are some of the highly frequently occurring types of malignancy worldwide [(1)]. GI cancer involve a variety of cancers that can impact any part of the GI tract, including the esophagus, stomach, colon, rectum, anus, gallbladder, pancreas, or liver (2).

Chemotherapy is one of most common type of treatment for many kind of cancer (3). Is used to treat cancer or palliate the condition by shrinking tumors to reduce symptoms of cancer (4, 5). Often result in debilitating side effects such as fatigue, pain, and emotional distress (6). The administration of chemotherapy on multiple occasions has deleterious implications for the physical and social functions of individuals afflicted with cancer (7). The need for comprehensive care that addresses both physical and psychological aspects of cancer treatment is increasingly recognized in the literature (8). Maintaining a high quality of life (QOL) is particularly important for cancer patient's undergoing chemotherapy, as the treatment can be physically and emotionally taxing (9).

In recent years, positive psychology has evolved significantly, with resilience emerging as a pivotal focus in mental health research both domestically and internationally (10,11). Seiler et al. discovered that the physiological foundation of psychological resilience in cancer patients lies in the adaptability of the "reward and fear circuit." (12). Cancer patients with higher psychological resilience generally experience better mental and physical well-being. Therefore, cancer patients must explore strategies for building psychological resilience, as it can significantly improve their mental health (13).

Social support has been shown to help cancer patients cope better with their illness and adapt quickly to changes as a psychological intervention that led to successful disease management (14). In addition, it was found that the greater the social support, the lower the depression rate in patients and that social support had an impact on resilience (15,16). Emotional and informational support from family, friends, and healthcare providers can alleviate stress and improve coping mechanisms

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(17). Social support serves as a preventive variable for QOL and is a crucial predictor of well-being in cancer patients (18,19).

Gastrointestinal cancer patients experience psychological distress, which affects their QOL over time (20,21). Resilience acts as a buffer against the psychological distress associated with cancer, mediating the relationship between hope and spiritual well-being (22). This psychological trait helps patients adapt to the challenges of cancer treatment (8). Low resilience has been related with greater degree of psychological suffering, including depression and anxiety, which can negatively impact treatment adherence and results (23, 24).

Screening for poor resilience, , could enhance QOL by addressing negative emotions and boosting resilience through appropriate interventions (25,26). The aim of this study is to investigate the mediating role of social support in the relationship between resilience and quality of life.

2. Methodology

2.1 Design of the Study:

A quantitative, descriptive cross-sectional study design was conducted to the examination of the relationships among resilience, QOL, and social support. Also to examine the mediating role of social support in the relationship between resilience and QOL at a single point in time among patients with GI cancer receiving chemotherapy. The study was conducted from October 27, 2024, and ended on April 30, 2025.

2.2. Settings of the Study

The study was undertaken at three Iraqi governorates, which include Al-Shifa Oncology Center in the Missan Health Directorate, the Specialized Oncology Center in the Basra Health Directorate, and the Oncology Center at Al-Haboubi Hospital in the DhiQar Health Directorate. These settings were chosen because they care for many cancer patients receiving chemotherapy, making them ideal for recruiting participants.

2.3. Sample and sampling

The study sample was selected through the non-probability (purposive) sampling method. The study was focus on a specific sample of patients with GI cancer receiving chemotherapy; the sample was assembled following the inclusion and exclusion criteria that the researcher had established:

2.3.1. Inclusion criteria: The participants were consisting of adults who are diagnosed with Stage three or four GI cancer, receiving chemotherapy, at least 18 years old of both sexes, agree to participate, able to read and write. Undergone at least two sessions of chemotherapy and participation in this study is voluntary.

2.3.2. Exclusion criteria: Patients were excluded with cognitive impairments that would affect their ability to complete questionnaires, were unable to read or write, undergoes first chemotherapy session, those who refuse to participate was excluded.

2.4. Sample size:

The total population size of GI cancer patients undergoing chemotherapy at the selected oncology centers is 1135. A confidence level of 95% was be used, with the margin of error set at 5%. The sample size was calculated using standard formulas for sample size estimation. Based on these calculations, the sample size was 287. However, the final sample size included 275 participants, as 12 invalid or incomplete questionnaires being eliminated.

2.5. Study Instrument:

2.5.1 Part I: The Demographic and clinical data:

This section include is about getting demographic information which includes age, sex, marital status, education level, occupation, and monthly income. Clinical information type of cancer, stage of cancer, and duration of treatment.

2.4.2 Part II: Connor-Davidson Resilience Scale (CD-RISC10):

Development by Dr. Kathryn and Dr. Jonathan in 2001-2013 (27). Arabic Version: Translated by Hamed, et al., (28). Includes of 10 items to assess the respondent's resilience. The items are evaluated utilizing a Five-point Likert scale (range 0 – 4). The overall score (range 0 – 40), with elevated scores indicative of enhanced resilience. Each item score is summed to compute the overall score.

2.4.3 Part II: European Organization for Research and Treatment of Cancer Quality of Life (EORTC QLQ-F17)

The EORTC QLQ-F17 is a QOL instrument tool advanced by the EORTC QOL Group (29). It is prepared to assess the QOL in cancer patients. The questionnaire comprises functional domains, and global health status/QOL. The questionnaire includes multiple 17 items. Responses recorded using a Likert scale, typically (range 1 - 4) or (1 to 7). Scores are calculated for each domain by averaging the scores

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of the items inside that domain. The scores can be converted to a 0-100, where higher values indicate better functioning, or an improved QOL.

2.4.4. Part IV: Multidimensional Scale of Perceived Social Support (MSPSS-12)

It assesses perceived social support from family, friends, and significant others (30). Using 12 items on a Five -point Likert scale (range 1 – 5). Scores (range 12 – 60), with greater average scores representing greater social support.

2.6. Data Collection and Analysis:

The statistical package for social science (IBM), version 26, was utilized for coding and analyzing the data statistical methods were applied is Hayes Macro Test were employed to test modulating role (31).

Results:

Table 1. Distribution of GI Cancer Patients According to their Socio Demographic Data Characteristics (N=275)

Demographic Characteristics	Subgroup	f.	%
Age Group	20-29 year	44	16.0
	30-39 year	61	22.2
	40-49	52	18.9
	50-59	72	26.2
	60 year and more	46	16.7
	Total	275	100.0
	Mean ± SD 45.05 ± 13.529 Min- Max 20-7٥ years		
Sex	Male	162	58.9
	Female	113	41.1
	Total	**275**	**100**
Marital status	Single	49	17.8
	Married	208	75.6
	Widowed/er	18	6.5
	Total	275	100
Level of education	primary school	17	6.2
	Intermediate school	39	14.2
	Reparatory	57	20.7
	Institute	76	27.6
	University	86	31.3
	Total	275	100
Occupation	Government employee	97	35.3
	Private sector employee	16	5.8
	Retired	21	7.6
	Freelance	21	7.6
	Jobless	120	43.6
	Total	275	100
Monthly income (Iraqi Dinar)	Less than 300,000	121	44.0
	301,000_600,000	23	8.4
	601,000_900,000	41	14.9
	901,000_1,200,000	34	12.4
	1,201,000_1,500,000	40	14.5
	More than 1,500,000	16	5.8
	Total	275	100

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Gastrointestinal cancer patients (N=275) were distributed according to demographic characteristics as follows: Patients in the age group 50-59 years constituted the largest proportion at 26.2%, followed by the age groups 30-39 years (22.2%) and 40-49 years (18.9%). The mean age ranged from 20 to 70 years, with a mean of 45.05 years.

In terms of Sex, 58.9% of patients were male and 41.1% were female. Married patients constituted the largest proportion at 75.6%. In terms of education, the largest proportion of patients completed their education at university (31.3%) or institute (27.6%). As for employment, 43.6% of patients were unemployed, and 35.3% were employed in the government sector. In monthly income, 44% of patients earn less than 300,000 Iraqi dinars.

Table 2. Distribution of the patients According to their Clinical Data Characteristics among GI Cancer Patients (N=275)

Clinical Characteristics	Subgroup	f.	%
Type of cancer	Colon	173	62.9
	Rectum	24	8.7
	Stomach	33	12.0
	Pancreas	24	8.7
	Liver	21	7.6
Stage of Cancer	Stage three	193	70.2
	Stage four	82	29.8
Duration of chemotherapy	3-8 Months	102	37.1
	9-14 Month	78	28.4
	15-20 Months	41	14.9
	21-26 Month	28	10.2
	27-32 Months	19	6.9
	33 Months or More	7	2.5
	Mean ± SD 13.11 ± 8.264 Min- Max 3-36 month		

As for the type of cancer, colon cancer constitutes the largest percentage with 62.9%, followed by stomach cancer with 12.0%, rectum, and pancreas with 8.7% each, while liver cancer represents 7.6%. As for the cancer stage, 70.2% of patients are in stage III and 29.8% are in stage IV. As for the duration of chemotherapy, 37.1% of patients receive treatment for a period of 3 to 8 months, while 28.4% receive treatment for a period of 9 to 14 months. The mean duration of chemotherapy is 13.11 months with a standard deviation of 8.264.

Table 3. Descriptive data for resilience, Quality of life and social support (N=275)

Scales	Min- Max	M ± SD
CD-RISC-10	6.00-40.0	**22.84** ± 7.18904
MSPSS	16.00-60.0	**44.6182±9.0358**
EORTC QLQ-F17		
Physical Functioning	.00-90.0	50.8720 ± 19.41954
Role Functioning	.00-90.0	26.6909 ± 22.62389
Cognitive Functioning	.00-100.0	64.6182 ± 23.12134
Emotional Functioning	.00-100.0	40.1515 ± 24.85210
Social Functioning	.00-100.0	54.1818 ± 24.45031
Global Health Status/QOL Scale	.00-92.31	48.0839 ± 17.60805

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Overall QOL Scale	13.95-82.09	**47.4331± 14.27295**

The results showed that the mean of resilience was 22.84, reflecting a generally low level of psychological resilience. The table shows that the mean of the perceived social support was 44.62, indicating that most of the participants had a high level of perceived social support.
The table also shows that the mean physical performance was 50.87, indicating a good level of physical ability. The mean functional performance was 26.69, reflecting significant limitations in performing daily roles. Cognitive performance recorded a mean of 64.62, indicating a good level of cognitive ability, while emotional performance recorded a mean of 40.15, indicating significant emotional challenges. Social performance achieved a mean of 54.18, reflecting relatively good social interactions. Global Health Status/QOL achieved a mean of 48.08, indicating a poor level with a significant impact on health status. Finally, the mean Overall QOL was 47.4331, reflecting a relatively poor ability to adapt to health conditions.

Table 4. Mediation analysis of resilience and quality of life (N = 275).

Total effect of X on Y: (Resilience → quality of life)					
Effect	se	t	p	LLCI	ULCI
.7227	.1119	6.4573	.0000	.5024	.9430
Direct effect of X on Y: (Resilience → quality of life)					
Effect	se	t	p	LLCI	ULCI
.4031	.1064	3.7888	.0002	.1936	.6125
Indirect effect(s) of X on Y: (Resilience → social support → quality of life)					
Effect	SE	LLCI	ULCI		
.3196	.0574	.2122	.4370		

SE, standard error; LLCI, lower limit confidence interval; ULCI, upper limit confidence interval.
The total effect of resilience on QOL was .7227, meaning that increased resilience is associated with increased QOL. This effect is highly statistically significant ($p < 0.001$), meaning that the relationship is not random. When looking at the direct effect only, it is still positive but less strong, at .4031, indicating that part of the effect of resilience on QOL occurs directly without relying on social support. The indirect effect via social support was .3196 and is statistically significant according to the confidence interval (LLCI = .2122, ULCI = .4370).

Discussions

Based on the data analysis displayed in Table 1, it appears that the average age was 45.05; half of the patients were male, and three-quarters of the sample were married. These findings are aligned to certain of the preceding local studies in Iraq(32–35) .
According to the results, most patients completed their education at a university or an institute, and almost half of the patients were unemployed and earned less than 300,000 Iraqi dinars monthly. These findings demonstrate a similarity to prior studies conducted in Iraq (36–38).
As for the type of cancer and duration of chemotherapy, colon cancer constitutes the largest percentage, followed by stomach cancer. As for the duration of chemotherapy, more than one-third of patients receive treatment from three to Eight months as shown in Table 2. These results aligns with study Yanjun Li et al (39). As for the cancer stage, almost three-quarters of patients are in stage III. These results are similar to those of a study done in South Korea, which shows that nearly three-quarters of patients had stage III (40).
Table 4 shows Model Four of the PROCESS macro procedure was used to examine the mediating effect of PSS on the resilience and QOL of patients with GI cancer, after controlling for variables. As shown in (table 4), the total effect of resilience on QOL was (0.7227), the direct effect value was (0.4031), and the indirect effect via social support was (0.3196). This research indicates that social support might connect resilience with QOL.

This result aligns with the previous researches indicates that social support partially mediates the correlation between resilience and QOL among individuals diagnosed with mammary carcinoma (41,42). Moreover, Researches indicates that individuals with low psychological resilience, older age, and reduced social support are at an increased risk of experiencing a decline in QOL (43,44). Receiving higher levels of social support may help improve psychological resilience (10,42,45). This indicates that individuals who recognize elevated levels of social support encounter a diminished incidence of adverse health outcomes following stressful occurrences in contrast to those with minimal social support (46).

Conclusions

Colon cancer emerged as the predominant type and succeeded in prevalence by gastric, rectal, and hepatic malignancies. Nearly seventy-five percent of individuals were classified as being at stage III of the disease. Patients diagnosed with gastrointestinal malignancies in southern Iraq exhibit a diminished QOL alongside inadequate psychological resilience. Most patients indicated substantial social support; robust familial and communal backing was recognized as protective determinants of quality of life. The findings of this investigation elucidated that social support serves as a mediating variable in the interplay among psychological resilience and QOL. This function enhances psychological resilience and consequently improves cancer patients' overall QOL.

Recommendation

1. Establish structured programs to enhance psychological resilience, stress management, and coping skills for GI cancer patients. These should be part of routine care in hospitals and cancer centers.
2. Strengthening Social Support Networks. It is essential to encourage family involvement and community support to enhance the perceived social support for cancer patients. This could include support groups, counseling sessions, and family education programs.
3. Integrate psychological resilience training into routine care. Psychological resilience training should be an essential part of the treatment pathway for GI cancer patients. This can include counseling sessions, resilience workshops, and educational materials that help patients develop stronger coping mechanisms.

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