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Death Anxiety and Depression among Cancer Patients: Role of Perceived Social Support

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Abstract

The primary objective of this study was to investigate the relationship between death anxiety and depression in individuals coping with cancer, focusing specifically on the role of perceived social support as a protective factor. The sample consisted of 200 cancer patients (95 males, 105 females) from hospitals in Rawalpindi and Islamabad, spanning different age groups. Data were categorized by cancer stage and treatment types. Using a cross-sectional design and correlational approach, the study found excellent reliabilities for Perceived Social Support (α = .90) and good reliabilities for Depression and Death Anxiety (α = .83 and .85, respectively). Gender-based differences were not significant for depression (t = -.51, p > .05) or perceived social support (t = -.23, p > .05). Perceived social support was highest initially and declined as cancer progressed. Significant variance in social support was observed across cancer stages (p < .05), with post hoc tests showing that 1st stage patients had significantly higher support than 2nd, 3rd, and 4th stage patients (MD = 7.27, p = 0.09). The study also showed gender differences in death anxiety, suggesting that women exhibited higher levels of death anxiety compared to men. Moreover, perceived social support was high at the 1st stage and significantly declined as the level progressed (3rd stage). The findings can be helpful for health professionals, psychologists and caregivers.

Key Words: Cancer, Death Anxiety, Depression, Perceived Social Support

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Introduction

Cancer is a condition marked by the uncontrolled proliferation and dissemination of cells within the body. Cancer diagnoses appear to be on the rise and affect individuals of all races, sexual orientations, and socioeconomic backgrounds equally. The incident of cancer appears to be rising even though cancer prevention and treatment methods have improved over time (Rock et al., 2020).The world health organization reports that since 2020, there has been notable rise in cancer diagnosis and there have been 2.21 million reported cases of lung cancer and 1.93 million cases of colon cancer. An estimated one-third of individuals will get cancer over their lives (Ferlay et al., 2015).

Cancer is a chronic disease and approximately 10 million deaths, or nearly one in six deaths, in 2020, making it one of the leading causes of death globally (World Health Organization, 2022). A study reported that 32% patients of advanced cancer had death anxiety (Karampour et al., 2018). Moreover, the rise in cancer incidences has contributed to an increase in Disability-Adjusted Life Years (DALYs), thereby imposing a substantial global burden. In 2019, researchers documented 23.6 million new cancer cases and 100 million cancer-related deaths worldwide, estimating that approximately 250 million DALYs could be

attributed to cancer (Global Burden of Disease 2019 Cancer Collaboration, 2022).

The disease known as cancer is defined by the unchecked growth and division of body cells. The human body is composed of trillions of cells, and cancer can start anywhere in these cells.

Cell division is the essential process through which healthy human cells replicate and proliferate to generate new cells required by the body (Ritti-Dias et al., 2019). The creation of new cells serves to replace old ones that naturally expire due to aging or damage. While this process is typically well-regulated, occasional disruptions can occur, resulting in the inappropriate reproduction of damaged cells. Tumors are masses of tissue that can be formed by these cells (Kumar et al., 2020).

Over a hundred different types of cancer have been identified. Cancers are classified according to the organs or tissues from which they originate. Cancers can also be classified by the cell type that produced them, such as B. epithelial or squamous cell carcinomas. The National Cancer Institute (NCI) has identified several groups of malignancies that originate in different cell populations like Carcinoma, bone cancer, breast cancer, colon cancer, and esophageal cancer (National Cancer Institute, 2021).

Depending on the types (and stage of cancer, various therapy options are available for cancer patients. Chemotherapy, Radiation, Surgery, targeted therapy, and immunotherapy are examples of systemic drug treatments that can have far-reaching effects. Palliative care, also known as supportive care, focuses on alleviating distressing symptoms, such as pain and difficulty breathing that can accompany cancer (Almostadi, 2012). Alternative medicine can be used in conjunction with conventional care. It might aid in reducing pain, exhaustion, and other negative side effects of cancer treatment as well as cancer symptoms including nausea. Alternative cancer treatment options include acupuncture, yoga, massage, meditation, and relaxation therapies (Soleimani et al., 2016).

Death is inevitable fact which will come to all, but specific subgroups are more fearful than the other. Death anxiety can be caused by numerous factors and have many dimensions.

Numerous socio-demographic factors, such as age, education, gender, marital status, cultural variances, overall health, psychopathological conditions, and religious beliefs, have been demonstrated as substantial predictors of death anxiety (Kugbey, 2022). The fear of dying is the source of death anxiety. It is connected to the primal terror of having one's own existence destroyed. Feelings of insecurity, anxiety, or terror over one's own or another person's imminent death or a close brush with death are other characteristics of death anxiety (Şengül et al., 2014). Death phobia is widespread throughout the world, especially among the elderly. However, young people are not immune to developing a morbid fear of death as they witness or experience it for the first time (Palacio et al., 2018). As a result, reducing elderly peoples fear of death may have positive effects on their mental health and overall quality of life. Thoughts of death rise in frequency and severity as a chronic illness progresses (Ng et al., 2015). As indicated by several studies, women are more prone to experiencing death anxiety and fear compared to men; other studies, particularly those that examined cultural differences, revealed that women usually experience these emotions more frequently. Several studies have found a connection between death anxiety and emotional pain. Fear of dying is associated with anxiety, depression, and afterlife obsession. It has a connection to unresolved physical and emotional suffering (Gonen et al., 2012).

Depression is a universal experience that affects everyone at some point. In addition to hindering daily activities, it can manifest with physical symptoms such as aches and pains, alterations in appetite or body weight, sleep disturbances, and an overall sense of fatigue. Additional symptoms include challenges in concentration, heightened negative emotions like guilt or feelings of unworthiness, and a preoccupation with self-harming behaviors (Weitlauf et al., 2013).

It has been shown that chronic stress is detrimental to brain development (Lupien et al., 2009). Researchers have found that people with chronic diseases and terminal conditions like cancer are more likely to experience depression than the general population (Soleimani et al., 2016). Mental health problems, such as depression, can significantly alter the course of illness. Anxiety and depression are common problems for breast cancer patients (Sudarisan et al., 2019).

The term perceived social support is used to describe an individual's belief that they can count on their social network for emotional, financial, and practical support when they are struggling. There has always been a correlation between how much social supports one feels they are receiving and how content they are (Eom et al., 2013).

Perceived care and availability of a support system from others is the essence of social support, which is essential in both routine and emergency situations (Ustaalioglu et al., 2018). One must consider how members of one's immediate circle, such as relatives and life partners, would interpret this. It is the subjective impression of being supported. There are various types of support, including emotional, instrumental, evaluative, and educational (Zabalegui et al., 2013).

Social support is vital for dealing with various life challenges, but the perception of the fact that someone is there for the individual facing life challenges is more important aspect (Wesley et al., 2013).

According to a meta-analysis, people's actual and perceived physical and mental health benefit from having strong social support networks. While numerous studies have indicated a wide range of mechanisms via which perceived social support impacts mental health outcomes, the precise mechanisms by which perceived social support boosts the mental health of young adults remain unclear (Bibi & Khalid, 2020).

In cancer patients, perceived social support from family and friends was linked to favorable moods and outcomes for those afflicted for an extended period of time (Zamanian et al., 2021). Perceived social support from peers helps cancer patients feel more normal and boosts their mood. Patients with cancer who are able to maintain a positive outlook and sense of humor are less likely to suffer from sadness and anxiety while they face their illness (Grabler et al., 2018).

Objectives

1. To find the relationship between death anxiety and depression among cancer patients, also relationship between death anxiety and perceived social support.
2. To find gender-based difference on death anxiety among cancer patients
3. To find gender-based difference on depression among cancer patients
4. To find the impact of death anxiety or depression.
5. To find difference in levels of perceived social in terms of stages of cancer among cancer patients.
6. To find the moderating role perceived social support.

Hypotheses

1. Females will score low on depression as compared to male cancer patients.
2. Death anxiety will have positive impact on depression.

3. Perceived social support will be high at initial stage as compared to advanced stage.
4. perceived social support will play the role of moderator between death anxiety and depression among cancer patients.

Method

Sample

The sample for this study comprised a total of 200 cancer patients, with 95 males and 105 females selected from various hospitals in Rawalpindi and Islamabad (Pakistan Institute of Medical Sciences (PIMS), Combined Military Hospital (CMH), and Military Hospital (MH). The participants represented a diverse range of age groups, including young adults, middle-aged adults, and older adults. The data were further categorized based on the cancer stage and ongoing treatment types. The research employed a cross-sectional design, correlational in nature, and utilized a convenient sampling technique for participant selection. Only cancer patients (with multiple types like carcinoma, sarcoma, Leukemia, Lymphoma, Bone cancer, Breast cancer, Colon cancer, Esophagus cancer) were selected for the study. Cancer patients with age group of early Adolescents to Late Adulthood were included. Furthermore, Thalassemia patients and Individuals' who have any other chronic disease along with cancer were excluded.

Instruments

The following instruments were used in the study i.e., Demographic sheet, Hamilton Depression Rating Scale, Death Anxiety Scale and Multidimensional Perceived Social Support Scale.

Demographics Sheet

The demographic sheet was consisted of name, gender, age, marital status, birth order, family system, cancer type, cancer stage, treatment stage, duration of diagnosis and any other chronic disease.

Hamilton Depression Rating Scale Urdu Version (HAM-D-U)

The Hamilton Depression Rating Scale, initially developed by Hamilton (1960), was translated into Urdu (Hashmi et al., 2016). The Urdu version, known as the Hamilton Depression Rating Scale-Universal (HAM-D-U), is a reliable tool for evaluating depressive symptoms and comprises 21 items. According to the HAM-D scoring system, depression levels are categorized as follows: 10-13 (mild), 14-17 (mild to moderate), and >17 (moderate to severe). The Urdu translation of the HAM-D demonstrated commendable levels of internal consistency (Cronbach alpha = 0.71), test-retest reliability (>=.70), and inter-rater reliability (>=.80). A HAM-D-U score of 0-7 is generally considered indicative of normal functioning, while a score of 20 or higher suggests severe symptoms.

Multidimensional Perceived Social Support Scale Urdu Version

MSPSS was made to measure how much social support people think they get (Zimet et al., 1988). Urdu version of the MSPSS was used to find out how women felt about social support. It has 12 questions, with 4 questions for each subscale. Subscales cover family, friends, and significant others. The Likert scale ranges from 1 to 7, with 1 indicating "strongly disagree" and 7 denoting "strongly agree." To compute mean scores, follow these guidelines: For the Significant Other Subscale, sum up the scores for items 1, 2, 5, and 10, then divide the total by 4. For the Family Subscale, sum up the scores for items 3, 4, 8, and 11, and divide the total by 4. Regarding the Friends Subscale, add the scores for items 6, 7, 9, and 12, then divide the sum by 4. Lastly, for the Total Scale, aggregate the scores for all 12 items and divide the total by 12. The reliability and validity of this scale are both good. Internal consistency (alpha) for the MSPSS Urdu version was 0.92 and all subscales were

highly correlated with each other, with correlations between.65 and.78 (Akhtar et al., 2010).

Death Anxiety Scale Urdu Version

The "Templer Death Anxiety Scale" was developed by Templer in 1970 to measure people's levels of death anxiety. Tamkeen Saleem translated it into the Urdu language (DAS-U). This scale has 15 items with a Likert type of 1 to 5 on a five-point scale. The reverse codes for items 2, 3, 5, 6, 7 and 15 are 1 show (never) and 5 shows (always). It was initially tested on 210 children from hospitals and colleges in Rawalpindi and Islamabad. The possible total scores range from 15 to 75, with 15 to 35 denoting very little fear of dying, 36 to 55 denoting moderate fear of dying, and 56 to 75 denoting extremely high fear of dying. Hence, a high score indicates that a person has a lot of dread of dying. This scale's validity and reliability were both found to be satisfactory. An indicator of dependability called Cronbach's alpha indicated a strong degree of internal consistency. at.88 (Saleem et al., 2015). It is the most well-known and regarded psychometric measure for evaluating dread of death, and it has been translated into more than 26 other languages (Saleem et al., 2015).

Procedure

After receiving formal approval from the study committee, the data collection process was begun. The participants' informed consent, which includes information about the goal of the study and privacy of the data acquired, was also signed after informal authorization from the head of the oncology and radiation departments of the CMH and PIMS hospitals was obtained. The information was gathered from 200 cancer patients, including 95 men and 105 women. Convenient sampling was used to choose the sample, and a cross-sectional design was used for the correlational analysis. Each participant received instructions, and they were instructed to respond using the appropriate scales and instruments. Data were gathered using Multidimensional Perceived Social Support Scale (MSPSS Urdu version), Death Anxiety Scale (DAS-U), and Hamilton Depression Rating Scale (HAM-D-U). Participants gave their informed consent, and confidentiality was guaranteed. They received a briefing on the subject and aim of the investigation. The highest moral standards were followed. After data collection, the data was analyzed using SPSS-24.

Data Analysis

The data was analyzed using the Statistical Package for Social Sciences (SPSS). Quantitative analysis, examination of psychometric properties for all scales, descriptive statistics, independent sample t-test, one-way ANOVA, and moderation analysis were conducted to assess research hypotheses.

Ethical Considerations

The APA 7th Edition ethical guidelines were followed in the research study. The participants were granted the right to voluntarily take part in the study. Subjects participating in the study signed the informed consent form. They were interviewed about the purpose and nature of the study. Their anonymity was preserved. Confidentiality was maintained and the data was used for research purposes only. No participant was harmed physically, socially or psychologically.

Results

Table 1

Frequency and Percentage of Demographic Variable of the Study (N = 200)

S. No	Variable	Categories	*f*	%
1.	Treatment Stage	Chemotherapy	124	62
		Radiotherapy	35	17.5
		Chemotherapy and Radiotherapy	21	10.5
		Surgery	11	5.5
		Medication	9	4.5

Note. f = frequency*; %* = percentage

The Table 1 includes treatment stage which is divided into four stages which includes Chemo (124 treatment stage with 62 %), Chemotherapy and Radiotherapy which were (21 with 10.5 %), (Healed were 1 with .5 %) and (last were Hormonal therapy with .5 %).

Table 2

Psychometric Properties of Depression, Death Anxiety, Resilience & Perceived Social Support (N=200)

Variables	*N*	α	Min	Max	*M*	*SD*	Skewness	Kurtosis
Depression	21	.83	0	52	16.69	10.66	.87	.61
Death Anxiety	15	.85	16	68	44.31	10.92	-.18	.10
Perceived Social Support	12	.90	4.08	77.58	58.1	14.14	-1.28	1.75

Note. K= Total number of items, α= Alpha reliability, M= mean value and SD =standard deviation

The Table 2 indicates significantly excellent reliabilities of Resilience and Perceived Social Support (α = .94 and .90 respectively). Moreover, Alpha reliabilities of Depression and Death Anxiety were good (α = .83 and .85 reliability respectively). Most of the study variables were negatively skewed whereas the depression was positively skewed.

Table 3

Means, Standard Deviation and t-value of the Depression and Death Anxiety in Male and Female Cancer patients (N = 200)

Variables	Male (*n* = 95)		Female (*n* = 105)				95% CI		
	M	*(SD)*	*M*	*(SD)*	*t*	*p*	*LL*	*UL*	Cohen's d
Depression	16.3	10.8	17.1	10.6	-.51	.61	-3.76	2.21	0.07
DA	42.5	10.3	46	11.3	-2.31	.02	-6.52	-.51	0.32

Note. DA = Death Anxiety; *n* = sample size; *M* = mean; *SD* = standard deviation; *t* = *t*-value; *p* = significant difference; CI = confidence interval; *LL* = lower limit; *UL* = upper limit

The Table 3 shows the differences between male and female having depression and death anxiety among cancer patients. However, no significant gender based were found in terms of depression. (t = -.51, p > .05), resilience (t = .42, p > .05) and perceived social support (t = -.23, p > .05).

Table 4

Correlation between Depression, Death anxiety & Perceived Social Support (N=200)

Variables	*M*	*SD*	1	2	3
Depression	16.69	10.66	-	.19**	-.32**
Death Anxiety	44.31	10.92	-	-	-.12
Perceived Social Support	58.1	14.14	-	-	-

Note. **p<.01

Table 4 demonstrates the correlation between depression, death anxiety and perceived social support. Results indicate that depression was negatively correlated with perceived social support (-.32**, p<.01), while positively correlated with death anxiety (.19**, p<.01). There was no significant correlation between death anxiety and perceived social support (-.12, p > .01).

Table 5

Linear Regression Analysis for Impact of Death Anxiety on Depression (N = 200)

Variables	B	S.E	β	P
Constant	8.41	3.11		.007
DA	.187	.68	.19	.007
R	1.9			
R^2	.37			
ΔF	7.53			

p< .001

Table 5 indicates that death anxiety significantly predict depression that means death anxiety have impact on depression. Death anxiety causes 37% in depression and standard error is 3.11. The value of p is .007 which was below than .05 which shows that the results were significant.

Table 6

Analysis of ANOVA of Perceived Social Support with Four Stages of Cancer (N = 200)

Source	Sum of Squares	df	Mean Square	*F*	*p*
Category					
Between groups	1574.85	3	524.95	2.69	.04
Within Groups	38235.36	196	195.08		
Total	39810.20	199			

Table 6 indicates simple analysis of variance in which perceived social support was taken as dependent variable and stages of cancer as factor. The result indicates all the four cancer stages have significant (p<.05) variance in the level of perceived social support. To analyze further that which stage has significant variance in perceived social support, post hoc test was applied.

Table 7

Post Hoc Test for Perceived Social Support in Stages of Cancer (N = 200)

Category				95% of CI	
Independent	**Joint**	**Mean Difference**	***p***	***LL***	***UL***
1st stage	2nd stage	5.35	.13	-.89	11.59
	3rd stage	7.27	.09	-.65	15.19
	4th stage	3.14	.76	-3.75	10.04
2nd stage	3rd stage	1.92	.99	-6.79	10.62
3rd stage	4th stage	-2.21	.97	-9.99	5.58
	4th stage	-4.12	,78	-13.26	5.01

Table 7 shows post hoc comparisons using Dunnett T3 test which indicated that 1st stage cancer patients have significantly higher perceived social support as compared to 2nd, 3rd and 4th stage cancer patients (MD = 7.27, p = .09)

Figure 1

Graphical Representation of Post Hoc Test for Perceived Social Support among Stages of Cancer

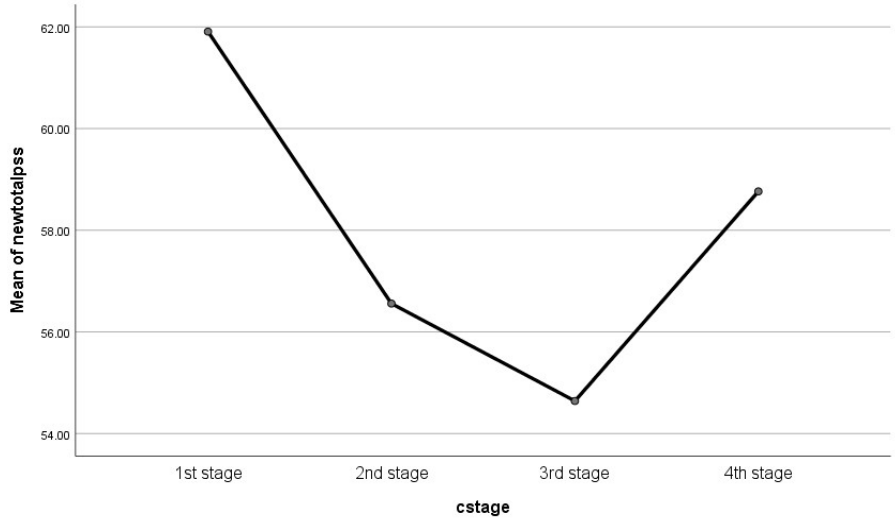

Figure 1 indicated that that 1st stage cancer patients have significantly higher perceived social support as compared to 2nd, 3rd and 4th stage cancer patients. Perceived social support was lowest at 3rd stage.

Table 8

Moderation Effect of Perceived Social Support on Association between Death Anxiety and Depression (N = 200)

	b	**SEB**	***t***	***p***
PSS (centered)	-20.4	16.4	-1.24	.21
DA	1.13	.36	3.14	.00
PSS*DA	.45	.25	1.79	.07
PSS (centered)	-.01	.005	-2.77	.00

Note. b = coefficient; *t* = t –value; *p* = significance value

Table 8 indicates at low score of perceived social support (-1SD), a significant relationship was found between death anxiety and depression, b = 0.42, *t* = 3.60 *p* < .000, 95% BCa CI .19, .65]. Similarly, at average (mean score) of perceived social support, there is a significant positive relationship between death anxiety and depression, b = 0.19, *t* = 2.92, *p* < .001, 95% BCa CI [.06, .33]. Whereas, when perceived social support is high (+1SD), there is a non-significant relationship between death anxiety and depression, b = 0.04, *t* =.66, *p* =.50, 95% BCa CI [-.09, .19].

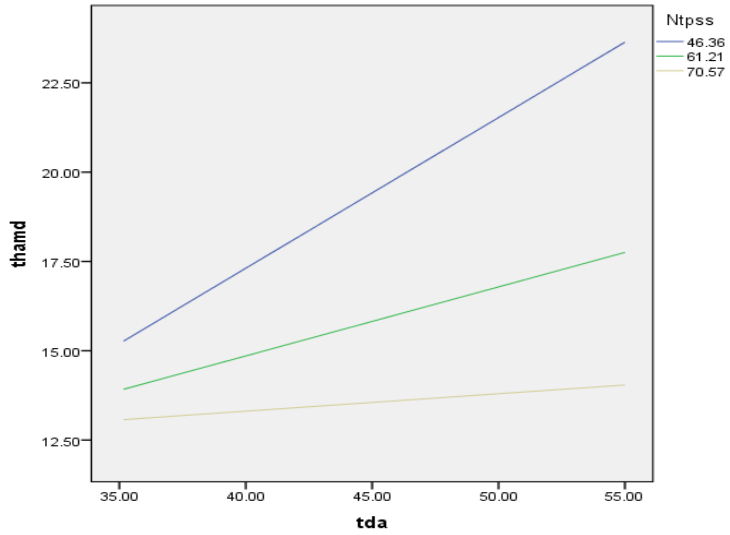

Figure 2
Simple Slop Analysis

The graph illustrates that at a low perceived social support score, a noteworthy relationship exists between death anxiety and depression. Similarly, at an average (mean score) level of perceived social support, a significant positive relationship is observed between death anxiety and depression. In contrast, when perceived social support is high, there is no significant relationship between death anxiety and depression.

Discussion

Nevertheless, no distinctions based on gender were identified in terms of depression and social support. This is contrary to other findings which state that women had higher mean score on depression as compared to men. The first objective was to find gender-based differences on study variables (death anxiety, depression, perceived social support and resilience). The result of our study found significant difference of death anxiety among male and female (t = 2.31, p = .02). Females scored high on death anxiety (M = 46; SD = 10.6) as compared to males (M = 42.5; SD = 10.3).

The second goal was to determine the influence of death anxiety on depression. The result of our study indicated that death anxiety significantly predicted depression owing to the fact death anxiety have impact on depression. Death anxiety causes 37% variance in depression and standard error was 3.11. Our findings were similar to previous research stating that death one of the strong predictors of psychopathology such as stress, depression and anxiety was death anxiety (Menzies et al., 2019). Other studies also have reported a strong association of death anxiety and depression. Thus, our hypothesis was proved that death anxiety will have significantly positive impact on depression.

The third aim was to investigate the correlation between perceived social support and the stages of cancer. The study results revealed that perceived social support tends to be higher among first-stage cancer patients compared to those in the third stage (MD = 7.27, p = 09). On the contrary, literature support that woman have low perceived social support in first stage of diagnosis as compared to second, third and fourth stage of cancer (Thompson et al., 2017).

The fourth objective was to find the moderating role of perceived social support. Our study hypothesis stated that when perceived social support will be low death anxiety and depression will be high. Our findings supported the hypothesis as results show when perceived social support is low (-1SD), there is a significant relationship between death anxiety and depression, b = 0.50, t = 4.29 p < .000, 95% BCa CI .27, .73). The hypothesis supports that the patients who have high perceived social support ,have less

anxiety and depression among cancer patients the ones who have low perceived social support in cancer patients (Yoo et al., 2017).

The present study has clinical implications, as it will aid experts, practitioners, and counselling psychologists in understanding the significance of perceived social support and resilience in the future in order to improve the quality of life of cancer patients. This study is also beneficial for family members who offer cancer sufferers unwavering support and safety. It is advised that qualitative research design be used in future studies to evaluate patients' perceptions of depression and fear of dying.

The study though has clinical implications for the cancer patients have few limitations as well because of resource scarcity and time constraints. As this study was conducted in twin cities of Pakistan (Rawalpindi & Islamabad), it might reflect the characteristics of this region only. Furthermore, because of limited time strain and resources, we could not access the effect of death anxiety over the different types of personality. We collected data from all types of cancer patient which resulted in heterogeneous data because of which few analyses were not conducted. Moreover, while collecting data/responses on the targeted variables, we didn't consider situational factors. Data was only limited to two cities of Pakistan and results of current study couldn't be generalized. Our research was dependent on self-report measures which can result in biasness. Thalassemia patients and as well as cancer patients having any other chronic disease were also not included in our study. In light of the study's findings, it is recommended that cancer patients receive counseling sessions and psychotherapeutic programs to establish a balance between death anxiety and overall quality of life. Furthermore, there is a call for further research aimed at developing targeted interventions specifically designed to mitigate the adverse effects of death anxiety. More suggestions are that research should be conducted, taking into account different cultures and beliefs. A qualitative research design is recommended for future studies to assess patients' own concepts about depression and death anxiety and to obtain better research results/findings, the sample size could be increased.

Conclusion

The current study explored the connection between death anxiety and depression among cancer patients, with a focus on the role of perceived social support as a protective factor. The results indicated a significant positive correlation between death anxiety and depression. Additionally, the study revealed a significant negative correlation between depression and perceived social support. The study findings further revealed the gender differences on variable death anxiety, indicating that women experienced more death anxiety as compared to men. However, no significant differences were observed in depression. Whereas, perceived social support was high at 1st stage and significantly declined as the level progressed (3rd stage).

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Contribution of Authors

Kiran Shahzadi: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft

Samia Mazhar: Conceptualization, Methodology, Writing - Reviewing & Editing, Supervision

Conflict of Interest

There is no conflict of interest declared by the authors.

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Data Availability Statement
The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [K.S.] upon the reasonable request.

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