

Coping Patterns, Pain Intensity, and Death Anxiety in Stage-II Cancer Patients

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Abstract

Death anxiety is a common psychological concern among people with cancer and is linked to poorer adjustment and reduced quality of life. Despite evidence connecting coping strategies and pain intensity with psychological outcomes, their combined relationship with death anxiety remains underexplored among patients with Stage II cancer in Pakistan. This study examined the relationships among coping strategies, pain intensity, and death anxiety; identified predictors of pain intensity and death anxiety; and assessed differences according to cancer type. A cross-sectional correlational design was used with 1,200 patients diagnosed with Stage II cancer. Participants were recruited through purposive sampling from oncology outpatient departments at selected Pakistani hospitals. They completed the Brief COPE Questionnaire, Numeric Pain Rating Scale (NPRS), and Death Anxiety Inventory (DAI). Data were analysed in Jamovi using Pearson's correlation, multiple linear regression, Welch's one-way ANOVA, and Games-Howell post hoc tests. Problem-focused coping was negatively correlated with death anxiety ($r = -.148, p < .001$). Denial coping was positively correlated with death anxiety ($r = .211, p < .001$) but negatively correlated with pain intensity ($r = -.172, p < .001$). The regression model explained 43.2% of the variance in pain intensity ($R^2 = .432$). Active coping positively predicted pain, while positive and denial coping were negative predictors. The death anxiety model accounted for 44.3% of the variance ($R^2 = .443$), with positive and denial coping identified as significant positive predictors. Coping strategies, pain intensity, and death anxiety differed significantly across cancer types, except for denial coping. Coping strategies and pain intensity were significantly related to death anxiety among patients with Stage II cancer. Problem-focused coping may reduce death anxiety, whereas denial coping is associated with greater psychological distress. These findings support incorporating culturally sensitive psychosocial assessments and coping-based interventions into routine oncology care to strengthen patients' psychological well-being.

Keywords: Stage-II cancer; death anxiety; coping strategies; pain intensity; psycho oncology; psychological adjustment; Pakistan; cross-sectional study.

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1. INTRODUCTION

The diagnosis of cancer entails more than just having an illness; it is a situation that has the potential of completely upsetting one's sense of security, identity, and future aspirations. Apart from dealing with the illness itself and its treatment, a patient faces uncertainties surrounding his/her survival, fear of

pain, family-related worries, and death itself. Nevertheless, despite its significance, death anxiety is a neglected psychological dimension of cancer care (Sharpe et al., 2018).

Death anxiety refers to fear and emotional disturbance due to the fear of death or the dying process itself. While everyone is conscious of their mortality, the onset of cancer tends to bring these fears closer to home because of the uncertainty that surrounds life and the future. People with higher death anxiety tend to be poorly adjusted, experience more emotional disturbance, and have poorer quality of life. (Gregurek et al., 2010).

As shown by studies in psycho-oncology, death anxiety is determined by a variety of psychological, social, and clinical aspects that interact with each other. Among such factors could be coping mechanisms, social support, meaning in life, self-esteem, and somatic complaints. (Sharpe et al., 2018). Such factors may help or hinder one's ability to adjust while receiving treatment.

1.1 Terror Management Theory and Death Anxiety

The current study uses Terror Management Theory (TMT) as a basis of understanding psychological responses to life-threatening diseases. The main hypothesis of TMT states that awareness of death can lead to existential anxiety, which is managed through psychological means like meaning of life, self-esteem, social support, and adaptive coping. (Greenberg et al., 1986).

The issue of mortality becomes an immediate concern for people with cancer. People can deal with the situation in the form of gathering information, problem-solving, and social support, while some people will use denial and avoidance. According to TMT theory, such coping strategies could define the extent to which mortality awareness causes psychological suffering.

1.2 Coping Strategies in the Context of Cancer

Coping strategies are the cognitive and behavioural responses individuals use to manage stressful demands that may exceed their perceived resources (Li et al., 2024). In cancer, these strategies help patients adjust to the emotional, physical, and social difficulties arising from diagnosis, treatment, and uncertainty about the future. Contemporary psycho-oncology research identifies coping as one of the most important determinants of psychological adjustment, resilience, and quality of life among cancer patients (Negash et al., 2025). Previous studies have consistently demonstrated that adaptive coping strategies, such as active coping, problem-focused coping, acceptance, and seeking emotional support, are associated with lower psychological distress and better emotional well-being. In contrast, maladaptive coping strategies, including denial, behavioral disengagement, and self-blame, have been linked to increased anxiety, depression, and poorer adjustment outcomes among individuals living with cancer. Active coping strategies, such as problem-solving, planning, and seeking support, are generally associated with better psychological adjustment and resilience. In contrast, passive coping strategies, including denial and behavioral

disengagement, have been linked to greater psychological distress and poorer mental health outcomes (Hasan et al., 2022; Kumar & Parashar, 2015)

Death anxiety is an emotionally aversive reaction triggered by thoughts of death whether one's own or others. It includes emotional, cognitive, and motivational components that vary depending on a person's life stage and cultural background. Literature shows that individuals with incurable illnesses adopt a range of coping strategies. Emotional support and acceptance are positively associated with better quality of life and improved mood, while denial and self-blame are linked to poorer outcomes. A significant proportion of cancer patients report using emotional support (77.0%), while fewer adopt acceptance (44.8%), self-blame (37.9%), or denial (28.2%) as coping mechanisms. Emotional support and acceptance are strong predictors of better physical and emotional well-being, whereas denial and self-blame predict diminished quality of life (Fouquet et al., 2013; Gregurek et al., 2010) .

Cancer-related fatigue is another widely reported concern, especially among those undergoing chemotherapy. Studies have shown that patients receiving chemotherapy, with or without radiotherapy, frequently report incapacitating fatigue that impairs physical, emotional, and occupational functioning (Kumar & Parashar, 2015; Kyota & Kanda, 2019).

1.3 Pain Intensity and Psychological Distress

The International Association for the Study of Pain describes pain as an adverse sensory and emotional experience linked to, or comparable with, the experience of actual or possible tissue injury (Raja et al., 2020). Pain is particularly prevalent and burdensome among people with cancer, as it can substantially impair physical functioning, psychological well-being, and overall quality of life. Cancer-related pain is complex and multidimensional, involving sensory, emotional, cognitive, and behavioral factors (Ramezanzade Tabriz et al., 2018)

However, recent findings show that there is a high correlation between pain severity and mental distress among patients with cancer. Those suffering from more severe pain also tend to suffer from anxiety, depression, hopelessness, and fear of cancer progression. (Gregurek et al., 2010; Sharpe et al., 2018). Persistent pain can also act as a source of reinforcement that makes people more aware of their health problems and vulnerabilities, thus making them fear death even more. Moreover, pain can lead to psychological maladjustment and existential distress of cancer patients.(Abbas et al., 2022) However, what needs to be noted is that the psychological effects of pain are not solely influenced by its level of intensity. Individual's coping skills play a role in how they experience pain in their interpretation. Despite experiencing pain, people who adopt positive coping mechanisms are likely to display good emotional adjustment. (Sharpe et al., 2018).

1.4 Cancer, Culture, and the Pakistani Context

The psychological response of individuals to cancer is not only dependent on individual factors but also depends on the cultural and social environment around them. In collectivist societies such as Pakistan, relationships within the family, religion, and the social network are especially valuable for coping with difficult situations in life. (Hofstede, 2001; Abbas et al., 2022v During the diagnostic and treatment process for cancer, families generally offer emotional, logistical, and financial help. This form of support can affect how the patient deals with illness-induced stress, pain, and thoughts about dying.

Results from studies conducted in Pakistan and other regions of South Asia have suggested that the factors of social support, religion, resilience, and meaningfulness in life can safeguard cancer patients against psychological distress. (Awais-E-Yazdan et al., 2023; Shahzadi & Mazhar, 2024). Higher levels of family cohesiveness and spirituality have been linked to lowered anxiety, better adjustment psychologically, and higher tolerance of illness-related problems (Al-Ghabeesh et al., 2020; Abbas et al., 2022). On the other hand, a lack of social support and adjustment problems with illness have been associated with higher levels of emotional disturbance and death anxiety in individuals with cancer. Oberth et al., 2025).

Even though the incidence of cancer in Pakistan is still on the rise, very little work has been done about the issue of death anxiety in the cancer patients in this country. Very few studies have focused on the effect of coping mechanisms and pain experience on the death anxiety of cancer patients in Pakistan. Regarding the importance of family, religion, and collectivism in the context of illness experience, more research is needed about the death anxiety of cancer patients in Pakistan.

1.5 Rationale

Death anxiety is a serious psychological issue for individuals who suffer from cancer since it is related to emotional problems, poor quality of life, non-adherence to therapy and coping with disease. Individuals who have high levels of death anxiety are prone to experience such mental issues as depression, anxiety, hopelessness, and existential problems. (Abed et al., 2020).

Coping strategies are vital to psychological adaptation. The use of adaptive coping strategies like active coping, problem-solving, and acceptance has been found to be correlated with good psychological adjustment while denial and behavioral disengagement have been seen to be connected to poor psychological adjustment. The impact of certain coping strategies on death anxiety is not very clear-cut. (Al-Ghabeesh et al., 2020; Alodhayani et al., 2021).

Pain is yet another key factor that influences the psychological aspects of cancer. Higher levels of pain have been linked to higher levels of anxiety, depression, fear of disease progression, and poor quality of life. Moreover,

pain can increase death anxiety by making the patients more conscious of the seriousness and physical frailty of the disease. However, there have been very few studies that have investigated this relationship. (Berlin & von Blanckenburg, 2022).

Similarly, there is not much evidence from South Asian cultures, especially Pakistan. There may be cultural values, religious beliefs, and family support that can influence the response of patients to cancer and the fear of death. It becomes difficult to say that the results obtained from the Western cultures are relevant in collectivist culture as well. The studies done specifically for patients suffering from Stage II cancer are not many. (Emanuel et al., 2023).

The current study seeks to address the limitations mentioned above by looking into the associations between coping methods, pain severity, and death anxiety among cancer patients with Stage II cancer. The results obtained from the study can contribute to the existing knowledge on how cancer patients adjust psychologically and develop culture-specific interventions. (Shrestha et al., 2024).

1.6 Research Objectives

The present study was designed to investigate the psychological factors associated with death anxiety among individuals diagnosed with Stage-II cancer. Specifically, the study aimed to:

Objective: To examine the relationships among coping strategies, pain intensity, and death anxiety and determine how these outcomes are associated with demographic and clinical characteristics, including gender, cancer type, illness duration, and family history of cancer, among patients with Stage II cancer.

1.7 Hypotheses

H1: Among patients with cancer, coping strategies will be significantly associated with pain intensity and death anxiety; coping strategies and demographic and clinical characteristics will significantly predict pain intensity; and coping strategies, pain intensity, and death anxiety will differ significantly across cancer types.

H2: Coping strategies and demographic and clinical characteristics will significantly predict pain intensity among patients with cancer.

2. METHODS AND SUBJECTS

The present study used a cross-sectional correlational research design. Participants were recruited through purposive sampling from oncology outpatient departments of selected hospitals. A total of 1,240 patients were initially approached; however, 1,200 patients met the eligibility criteria and agreed to participate in the study. Participants ranged in age from 18 to 75 years and had a confirmed diagnosis of Stage-II cancer. Individuals were included if they were medically stable, attending outpatient treatment services, able to understand the study instructions, and willing to provide informed consent. Patients who had recently undergone major surgery,

experienced severe cognitive impairment or psychiatric conditions affecting their ability to complete the questionnaires or were diagnosed with terminal-stage cancer were excluded from the study.

2.1 Instruments

Following instruments were used to measure the study variables;

2.1.1 Brief COPE Questionnaire

The Brief COPE Questionnaire (Mackay et al., 2021) was employed to evaluate effective and ineffective ways to use coping strategies among cancer patients to handle stress related events. This instrument contains 28 items and comprises four subscales: active coping, problem-focused coping, positive coping, and denial. Responses are measured on a scale ranging from 0 ("I have not been doing this at all") to 4 ("I have been doing this a lot"). The overall reliability coefficient was 0.8 and McDonald's omega (ω) was 0.78.

2.1.2 Numeric Pain Rating Scale (NPRS)

Pain tolerance was assessed using the Numeric Pain Rating Scale (NPRS) unidimensional (Al-Khazali et al., 2024), a unidimensional measure of pain intensity commonly applied in adults with chronic pain conditions, including rheumatic diseases. This scale consists of four items. Participants were asked to provide three pain intensity ratings reflecting their current pain, as well as the least and greatest pain experienced within the past 24 hours. The mean of these three ratings was used as the overall indicator of pain level for the previous 24-hour period. Pain Rating Instructions (adapted from McCaffery, Beebe et al., 1989): Participants were instructed to rate the intensity of their current, least, and worst pain over the past 24 hours using a numerical rating scale ranging from 0 (no pain) to 10 (worst pain imaginable). The overall reliability coefficient was 0.78 and McDonald's omega (ω) was 0.77.

2.1.3 Death Anxiety Inventory

Death anxiety was measured using the *Death Anxiety Inventory* (Hong et al., 2022), originally developed in Spanish and available in an English version. This self-administered questionnaire includes 17 items and uses a dichotomous (yes/no) response format. The overall reliability coefficient was 0.78 and McDonald's omega (ω) was 0.77.

To assess the reliability of the chosen scales, a pilot study with 30 participants diagnosed with cancer was conducted. All three scales - COPE, NPRS, and DAI - revealed themselves to be highly reliable, with reliability coefficients ranging between .87 and .90. Upon receiving an official permission from the hospital administration, the same scales were administered to the main sample consisting of 1,200 participants. They were given detailed information regarding the purpose of the study and directions on filling out the questionnaires.

3. RESULTS

Analysis of data was done using the Jamovi software. Pearson correlation coefficient was used to measure the relationship between the coping strategies, pain intensity, and death anxiety. Linear regression was then done to test whether the coping strategies and pain intensity could predict death anxiety. Finally, Welch's one-way ANOVA followed by Games–Howell post hoc tests were used to compare coping strategies, pain intensity, and death anxiety across different cancer types. The sample consisted of 51.0% males ($n = 612$) and 49.0% females ($n = 588$). Cancer types reported were neck cancer ($n = 240$, 20%), torso cancer ($n = 654$, 54.5%), limb cancer ($n = 198$, 16.5%), and hematologic malignancies ($n = 108$, 9%). Regarding the duration of treatment, 50% of patients ($n = 600$) had been treated for less than one year, 44.5% ($n = 534$) for 1 to 5 years, and 5.5% ($n = 66$) for 6 to 10 years. Furthermore, only 19% of participants reported a family history of cancer.

Table 1. Correlation matrix among coping strategies pain intensity and death anxiety (N= 1,188)

	Actcop	Prob.Foc	Pos.cop	Den.cop	Pain	Death
Actcop	-					
Prob.Foc	-0.030	-				
Pos.cop	0.067*	-0.096**	-			
		*				
Den.cop	0.056	-0.009	-0.037	-		
Pain	0.094*	0.090**	0.094*	-0.172**	-	
	*		*	*		
Death	-0.021	-0.148**	0.054	0.211**	-0.314***	-
		*		*		

Note. Actcp=active coping; Prob.foc= problem focused; Pos.cop=Positive coping; Den.cop=Denial coping; * $p < .05$, ** $p < .01$, *** $p < .001$

Table I presents the correlation matrix (function= `cor()`) among the study variables. Active coping is weakly positively associated with positive coping ($r = .067$). Problem-focused coping was associated with lower death anxiety ($r = -.148$) but slightly higher pain intensity ($r = .090$). Positive coping was weakly associated with higher pain intensity ($r = .094$) and was unrelated to death anxiety. Denial coping was associated with higher death anxiety ($r = .211$) and lower pain intensity ($r = -.172$). Pain intensity and death anxiety were

Table 2: Multiple linear regression analysis predicting pain intensity among cancer patients (N = 1,188)

Model	R	R ²	Adjusted R ²	AIC	BIC	RMSE
1	0.657	0.432	0.408	8393	8652	7.93

Predictors	B	SE	t	p
Active coping	0.300	0.093	3.211	.001
Positive coping	-0.291	0.113	-2.581	.010
Denial coping	-0.513	0.143	-3.589	< .001
Gender (Ref: Male)				
Female	4.956	0.570	8.694	< .001
Age (Ref: 1–25 years)				
26–50 years	6.316	0.930	6.792	< .001
51–75 years	6.730	1.135	5.932	< .001
76–100 years	11.805	3.975	2.970	.003
Mother's education (Ref: No education)				
Matric	4.424	1.967	2.249	.025
Mother's profession (Ref: Housewife)				
Working woman	-6.223	1.492	-4.172	< .001
Deceased	-3.575	1.321	-2.707	.007
Other	-7.044	2.364	-2.980	.003
Family structure (Ref: Joint)				
Nuclear	-1.872	0.590	-3.175	.002
Patient profession				
Army	-6.123	2.664	-2.299	.022
Marital status (Ref: Married)				
Widowed	-8.874	1.783	-4.976	< .001
Number of children (Ref: None)				
1–5	-3.955	0.947	-4.175	< .001
6–10	-2.921	1.215	-2.405	.016
Cancer Type (Ref: Neck and brain cancer)				
Torso cancer	-1.636	0.715	-2.288	.022
Blood cancer	-4.860	1.121	-4.334	< .001
Illness duration (Ref: <1 year)				
6–10 years	3.227	1.331	2.424	.016
Drug addiction (Ref: Non-smoker)				
Smoking	3.128	0.647	4.832	< .001
Physical problem (Ref: Yes)				
No	-2.988	0.716	-4.171	< .001

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

A multiple linear regression analysis was conducted to examine whether coping strategies and demographic and clinical characteristics predicted pain intensity among cancer patients. The overall model explained 43.2% of the variance in pain intensity ($R = .657$, $R^2 = .432$, adjusted $R^2 = .408$). Among the coping strategies, active coping was positively associated with pain intensity, whereas positive coping and denial coping were

negatively associated with pain intensity (all $p < .05$). Female participants and older age groups reported significantly higher pain intensity than males and younger participants, respectively. Higher pain intensity was also associated with matric-level maternal education, longer illness duration (6–10 years), and smoking. In contrast, lower pain intensity was observed among participants whose mothers were employed or deceased, those from nuclear families, widowed participants, those with children, patients with torso or blood cancer, and those without physical problems. The complete regression coefficients are presented in Table 2.

Table3: Significant predictors of Death Anxiety from the multiple linear regression model (N = 1,188)

Model	R	R ²	Adjusted R ²	AIC	BIC	RMSE
2	0.665	0.443	0.419	6240	6499	3.20
Predictor	B	SE	t	p		
Coping strategies						
Positive coping	0.224	0.046	4.914	< .001		
Denial coping	0.288	0.058	4.980	< .001		
Gender (Ref: Male)						
Female	-0.780	0.230	-3.387	< .001		
Mother's education (Ref: No education)						
Matric	1.917	0.795	2.412	.016		
Intermediate	-5.279	1.537	-3.435	< .001		
Father's education (Ref: Reference category)						
No education	-3.906	1.503	-2.599	.009		
Primary	-5.166	1.516	-3.408	< .001		
Middle	-4.305	1.534	-2.806	.005		
Matric	-6.824	1.516	-4.500	< .001		
Intermediate	-8.108	1.546	-5.245	< .001		
Graduate	-5.439	1.566	-3.473	< .001		
Father's profession (Ref: Army)						
Civil	-1.441	0.480	-3.004	.003		
Unemployed	-2.383	0.495	-4.817	< .001		
Deceased	-4.054	0.504	-8.043	< .001		
Other category	-3.909	0.592	-6.608	< .001		
Mother's profession						

Predictor	B	SE	t	p
(Ref: Housewife)				
Deceased	2.174	0.534	4.076	< .001
Other	4.875	0.955	5.104	< .001
Family structure (Ref: Joint)				
Nuclear	0.724	0.238	3.038	.002
Patient profession (Ref: Reference category)				
Army	-6.313	1.076	-5.866	< .001
Civilian	-4.405	1.090	-4.042	< .001
Unemployed	-4.331	1.107	-3.913	< .001
Marital status (Ref: Married)				
Unmarried	-2.944	0.416	-7.073	< .001
Widowed	.429	0.721	1.984	.048
Number of children (Ref: None)				
1–5	-1.657	0.383	-4.329	< .001
6–10	-2.577	0.491	-5.251	< .001
Cancer issue (Ref: Neck and brain cancer)				
Limbs cancer	-2.584	0.364	-7.107	< .001
Illness duration (Ref: < 1 year)				
6–10 years	-1.873	0.538	-3.483	< .001
Drug addiction (Ref: No smoking)				
Other substances	-1.227	0.470	-2.609	.009
Cancer pathology (Ref: Yes)				
No	-0.817	0.299	-2.733	.006

A multiple linear regression analysis was conducted to identify predictors of death anxiety among cancer patients. The overall model explained 44.3% of the variance in death anxiety ($R = .665$, $R^2 = .443$, adjusted $R^2 = .419$). Among the coping strategies, positive coping and denial coping were both positively associated with death anxiety (both $p < .001$). Female participants reported significantly lower death anxiety than males. Death anxiety was also significantly associated with parental education and parental occupation. Specifically, participants whose fathers had higher levels of education generally reported lower death anxiety, whereas participants whose mothers had matric-level education reported higher death anxiety and those whose mothers had intermediate education reported lower death anxiety compared with the reference group. Participants from nuclear families and widowed individuals reported higher death anxiety, whereas unmarried participants and those with children reported lower death anxiety. Lower death anxiety was also observed among participants with limb cancer, an

Table 4: Mean, Standard Deviation, F-values on coping strategies, pain intensity, and death anxiety on 4 types of cancer (N = 1188)

		<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
Active coping		16.877	3	347	<.001
Problem focused		9.582	3	346	<.001
Positive cope		9.220	3	495	<.001
Denial cope		0.244	3	373	0.865
Pain		9.530	3	355	<.001
Death		25.840	3	360	<.001

<i>Descriptive Statistics</i>					
	<i>Cancer Type</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
Active Coping	Neck and brain cancer	240	26.57	2.61	0.1686
	Torso cancer	654	26.04	2.97	0.1160
	Limbs cancer	198	24.64	3.07	0.2182
	Blood cancer	108	25.78	3.26	0.3134
Problem focused	Neck and brain cancer	240	15.28	2.62	0.1693
	Torso cancer	654	15.62	2.68	0.1047
	Limbs cancer	198	16.61	2.81	0.1999
	Blood cancer	108	16.06	2.85	0.2743
Positive Coping	Neck and brain cancer	240	19.80	3.93	0.2535
	Torso cancer	654	21.44	23.46	0.9173
	Limbs cancer	198	18.97	3.12	0.2215
	Blood cancer	108	18.17	2.64	0.2542
Denial Coping	Neck and brain cancer	240	8.72	2.31	0.1489
	Torso cancer	654	8.77	2.49	0.0973
	Limbs cancer	198	8.70	2.35	0.1668
	Blood cancer	108	8.89	1.83	0.1762
Pain	Neck and brain cancer	240	22.13	10.63	0.6863

	<i>Cancer Type</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>SE</i>
	Torso cancer	654	22.81	10.78	0.4217
	Limbs cancer	198	23.64	9.56	0.6793
	Blood cancer	108	17.33	10.68	1.0277
Death	Neck and brain cancer	240	27.93	3.52	0.2270
	Torso cancer	654	26.93	4.35	0.1703
	Limbs cancer	198	24.58	4.54	0.3225
	Blood cancer	108	27.78	3.78	0.3639

Welch's one-way analyses of variance were conducted to examine differences in coping strategies, pain intensity, and death anxiety across cancer types (neck and brain, torso, limbs, and blood cancer). Significant differences were observed for active coping, $F(3, 347) = 16.88, p < .001$, problem-focused coping, $F(3, 346) = 9.58, p < .001$, positive coping, $F(3, 495) = 9.22, p < .001$, pain intensity, $F(3, 355) = 9.53, p < .001$, and death anxiety, $F(3, 360) = 25.84, p < .001$. In contrast, denial coping did not differ significantly across cancer types, $F(3, 373) = 0.24, p = .865$. Descriptive statistics indicated that participants with limb cancer reported the lowest active coping and the highest problem-focused coping, whereas participants with neck and brain cancer reported the highest active coping. Patients with limb cancer also reported the highest pain intensity, while those with blood cancer reported the lowest pain intensity. Death anxiety was highest among participants with neck and brain cancer and lowest among those with limb cancer. Descriptive statistics for each cancer type are presented in Table 4.

Table 5: Significant Games–Howell post hoc comparisons across cancer types

Outcome	Comparison	Mean Difference	<i>p</i>
Active coping	Neck & brain vs Torso	0.538	.044
	Neck & brain vs Limbs	1.940	< .001
	Torso vs Limbs	1.400	< .001
	Blood vs Limbs	1.141	.016
Problem-focused coping	Limbs vs Neck & brain	1.331	< .001
	Limbs vs Torso	0.982	< .001
Positive coping	Neck & brain vs Blood	1.633	< .001
	Torso vs Limbs	2.471	.045
	Torso vs Blood	3.274	.003
Pain intensity	Neck & brain vs Blood	4.790	< .001
	Torso vs Blood	5.470	< .001
	Limbs vs Blood	6.300	< .001
Death anxiety	Neck & brain vs Torso	0.998	.003
	Neck & brain vs Limbs	3.350	< .001
	Torso vs Limbs	2.350	< .001
	Blood vs Limbs	3.202	< .001

Note. Only statistically significant Games–Howell post hoc comparisons are presented ($p < .05$). Positive mean differences indicate that the first group had higher mean scores than the second group.

Games–Howell post hoc analyses were conducted following significant Welch's ANOVAs to identify pairwise differences between cancer types. Participants with neck and brain cancer reported significantly higher active coping than those with torso and limb cancer, whereas participants with limb cancer reported significantly higher problem-focused coping than those with neck and brain and torso cancer. For positive coping, participants with neck and brain cancer and torso cancer reported significantly higher scores than those with blood cancer, while participants with torso cancer also reported higher positive coping than those with limb cancer. Regarding pain intensity, participants with blood cancer reported significantly lower pain intensity than those with neck and brain, torso, and limb cancer. For death anxiety, participants with limb cancer reported significantly lower death anxiety than those with neck and brain, torso, and blood cancer, whereas participants with neck and brain cancer also reported higher death anxiety than those with torso cancer. Complete post hoc comparisons are presented in Table 5.

4. DISCUSSION

The present study investigated coping strategies, pain intensity, and death anxiety among patients with cancer using correlational, regression, ANOVA, and post hoc analyses. It can be concluded that coping, symptoms, demographic profile, clinical features, and culturally oriented beliefs play a role in coping with cancer rather than simply the coping style. This analysis is in line with modern psycho-oncological research on cancer-associated distress where the disease features and patients' psychological reactions to somatic signs, uncertainty, and threats play a part. (Kumar & Parashar, 2015). It is therefore necessary to consider coping as a complex process of multiple dimensions depending upon the severity of the symptoms, the stage of the illness, and the culture. A patient may adopt a number of adaptive and non-adaptive coping methods instead of using one method only. (Lim et al., 2025). The correlations, although weak, held conceptual significance. Negative correlation between problem-oriented coping and death anxiety indicates that working through problems associated with an illness might help in developing a feeling of control and reducing existential dread among individuals. This is supported by evidence that suggests that effective planning, acceptance, emotional support, and active illness management lead to better psychological adaptation among cancer patients. (Lim et al., 2025; Oliveira et al., 2021) Denial coping, on the other hand, had a positive correlation with death anxiety, confirming previous research that found avoidant/disengaged coping to be correlated with more distress, poorer quality of life, and problems adjusting to uncertainty associated with illness. (Oliveira et al., 2021).

The associations of pain intensity and coping were a little more complicated in nature. Active coping was positively related to pain, while positive and denial coping had negative correlations with pain. The positive relationship of active coping with pain cannot be considered as proof that active coping causes pain in the patients. On the contrary, those patients who feel a lot of pain tend to seek help, take action and try to regain control. This explanation fits well with the fact that the higher burden of symptoms encourages coping efforts. (Ramezanzade Tabriz et al., 2018) The negative correlation between denial and pain is suggestive of a short-term distraction from bodily experiences. On the other hand, since denial is also correlated with high levels of death anxiety, there could be a tendency for an individual to experience reduced pain but poorer psychological adaptation. (Kumar & Parashar, 2015). There was also a notable amount of variance accounted for in the pain intensity model indicating that pain can be understood within the biopsychosocial framework. Pain was higher among females, older people, smokers and those with longer disease duration. Such findings may be related to biological susceptibility, increased disease burden, medication side-effects and unhealthy behaviour. Other literature suggests that there exists variability among individuals in terms of experiencing chronic pain due to their individual differences, while psychological distress, functional limitations and decreased quality of life are linked with cancer pain. Pain was lower among

blood cancer patients in comparison with selected solid tumours due to variations in pain mechanisms. Pain due to solid tumours is mostly localized nociceptive pain, while haematological diseases may have more generalized symptoms like fatigue, anaemia and increased infection susceptibility. (Greer et al., 2020; Lim et al., 2025).

The death anxiety model explained a considerable amount of variance as well, showing that death anxiety is influenced by various demographic, clinical, and psychosocial variables and is not merely an automatic response to a cancer diagnosis. Denial coping showed a positive association with death anxiety, which implies that the use of avoidance can stop patients from processing their concerns regarding prognosis and death. Positive coping also predicted higher death anxiety levels, which is surprising. It does not mean that positive coping is maladaptive. In light of the fact that causality is unknown, patients who experience higher levels of death anxiety would enhance their positive coping as a way of maintaining hope, significance, and emotional balance. Past studies have also found that existential crises or fear of tumor recurrence/progression can trigger a coping process rather than result from it. (Berlin & von Blanckenburg, 2022; Hasan et al., 2022; Xie et al., 2025). This could be attributable to the cultural background. In South Asian and Muslim majority cultures, coping tends to incorporate religious faith, family connectedness, acceptance, and spirituality. As a result, positive coping is likely to be a form of active coping with fear rather than lack of distress. It has been shown in the evidence collected from Pakistan and similar contexts that religious faith, family involvement, and spirituality affect the way cancer patients make sense of their illness, suffering, prognosis, and mortality. Muslim religiosity has been found to be linked with higher optimism and lower death anxiety, partly because of the reduction in depression. Studies conducted on the samples of Pakistani patients indicate that religious faith and meaning in life may act as moderating variables in relation to links between psychosocial assets and death anxiety. Silver-lining perspective and religious coping have been found to be potential protective factors in relation to depression and death anxiety among Pakistani female cancer patients. (Lim et al., 2025; Ośmiałowska et al., 2021).

ANOVA and Games-Howell post hoc results revealed differences in coping strategies, pain intensity, and death anxiety between various cancer types. Cancer of the brain and neck was found to be characterized by increased active coping and death anxiety levels. Cancer that impairs neurologic, sensory, communicative, or identity functions may generate higher existential threats, thus necessitating higher coping efforts from patients. Such an assumption is supported by the available data on the presence of high levels of emotional distress among patients with head and neck cancer. (Erdoğan & Koç, 2021). Patients suffering from blood cancer had low levels of pain, but patients with limb cancer had low levels of death anxiety despite their high levels of pain. This information shows that high levels of pain do not always indicate high levels of death anxiety. Pain may mainly be determined by the location of disease and biological factors while

death anxiety may be mainly determined by perceived prognosis and cultural issues. (Abbas et al., 2022).

These findings have implications for clinical practice by recommending screening for pain as well as for existential distress among cancer patients. Interventions should not focus only on reducing maladaptive coping but should also clarify when apparently adaptive coping reflects unresolved fear. Evidence supports psychosocial and meaning-centred interventions for reducing cancer-related distress, improving pain coping, and addressing death anxiety, with individual and group meaning-centred psychotherapy producing significant improvements in spiritual well-being, hopelessness, and desire for hastened death among patients with advanced cancer (Kumar & Parashar, 2015). A recent meta-analysis further confirms that meaning-centred interventions reliably reduce existential distress and depressive symptoms across cancer survivor populations (Šimunović & Ljubotina, 2020). Culturally sensitive interventions that incorporate family support, spiritual concerns, and patient-specific illness meanings may be especially relevant in collectivistic contexts (Abbas et al., 2022; Berlin & von Blanckenburg, 2022).

The study's cross-sectional, self-report design limits causal interpretation and may be affected by recall, social desirability, and cultural biases. Several relevant clinical and psychosocial factors were not fully examined. Future longitudinal and intervention studies should clarify the direction of these relationships and evaluate culturally adapted coping and meaning-centred approaches (Hasan et al., 2022).

Overall, coping, pain intensity, and death anxiety were interrelated. Problem-focused coping was associated with lower death anxiety, whereas denial was linked to poorer adjustment. These findings support culturally responsive, biopsychosocial cancer care addressing both physical and existential distress.

Author Contributions

Kanwal Shahbaz: Conceptualization, Methodology, Formal analysis, Investigation/data collection, Data curation, Writing: original draft, Writing: review and editing, Supervision, Project administration, Resources
Noreen Akhtar: Methodology, Data curation, Writing: original draft, Writing: review and editing, Project administration, Resources
Ayesha Shahbaz: Writing: original draft, Writing: review and editing, Project administration,

All authors have read and agreed to the published version of the manuscript.

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5.1 Institutional Review Board Statement

Given the sensitive nature of the study population (cancer patients and assessment of death anxiety), the ethical safeguards were ensured explicitly. The study was conducted in accordance with the principles of the Declaration of Helsinki and received ethical approval from IRB of Holy Family Hospital. Prior to participation, all eligible participants received verbal and written information explaining the purpose of the study, study procedures, the voluntary nature of participation, and their right to decline participation or withdraw from the study at any time without any consequences for their ongoing medical care or treatment. Consent forms were completed by all participants prior to data collection. As a result of the sensitive issues raised during the interview related to coping and death anxiety, participants were told that they were allowed not to answer any of the questions or stop the interview whenever they wished to do so without any negative consequences. Those who appeared distressed were referred to their clinical or psychological services. For the purpose of confidentiality, the questionnaires were coded rather than being identified with personal information.

5.2. Data Availability Statement

Data are unavailable due to privacy and ethical restrictions.

Conflicts of Interest

None to declare.

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