

Original Article

Assessment of Psychological Distress and its Association with Socio-Demographic Variables Among Cancer Patients in a Tertiary Care Hospital in North India: A Cross-Sectional Study.

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Abstract

Background

Cancer patients often face significant psychological distress due to the multifaceted challenges of their illness, including physical and emotional symptoms, and practical hardships, yet the Psychosocial aspects of care remain under-addressed.

Methodology

The present research is a cross-sectional study carried out at a tertiary care teaching hospital in North India. The study encompassed both outpatients and inpatients in February 2024 who were diagnosed with cancer and who gave consent for participation. Data collection was performed via face-to-face interviews conducted by undergraduate medical students in the languages spoken by the patients. Data collection utilized the National Comprehensive Cancer Network (NCCN) Distress Thermometer / Problem List (DT/PL) version 1.2024.

Results

This study surveyed 275 cancer patients using the NCCN Distress Thermometer (DT), revealing a mean distress score of 4.34 (SD =2.37), with 45.1% experiencing moderate and 13.1% severe distress. Majority of patients were male (57.1%), aged ≥ 60 years (52.4%), and from rural areas (63.3%). Type of malignancy was a significant predictor ($p = 0.034$) of distress levels. Patients with lung, gastrointestinal cancers and other malignancies & had the highest mean distress scores of 4.6, 4.6 and 5.0 respectively, while breast cancer patients had the lowest (3.1, $p = 0.028$).

Conclusion

The results emphasize the importance of routine psychosocial screenings and tailored interventions, particularly for high-distress cancer types. The study provides critical insights for integrating distress management into oncology care to enhance patient outcomes and quality of life in resource-constrained settings.

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Introduction

The escalating prevalence of cancer in India has not only intensified the clinical challenges but also the psychosocial impacts on patients. This underscores a crucial gap in the comprehensive care of cancer patients, where the focus on physical treatments overshadows the need for psychosocial support. [1] Psychological distress, manifesting in forms

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Keywords

Cancer, distress.

such as anxiety, depression, and social isolation, significantly deteriorates patients' quality of life and can hinder effective treatment compliance. Assessing the psychological distress among cancer patients is therefore critical for enhancing the quality of care and treatment outcomes [2], [3].

The Distress Thermometer (DT) is a validated tool widely used in clinical settings to measure psychological distress. The tool facilitates a comprehensive assessment that aids in tailoring interventions more effectively, ensuring a holistic approach to patient care. This tool, alongside a comprehensive problem list, helps in identifying various stressors impacting patients, including emotional, practical, physical, spiritual, and social concerns. [4] This early identification enables timely referrals to psychosocial services, showcasing the DT's practical utility in clinical settings. Evaluations of DT implementation in clinical settings reveal that structured assessments coupled with systematic follow-ups can significantly enhance distress management.

However, while the DT is widely adopted and beneficial for identifying distress, its optimal utilization hinges on comprehensive training for healthcare providers and the integration of systematic feedback into clinical practice. This strategy ensures that the screening translates into actionable insights, thus contributing significantly to patient-centred cancer care. [5]

This study aims to elucidate further the role of distress screening in improving the psychosocial well-being of cancer patients, with a focus on the applicability of the DT in a medical college setting. This aims at assessing the psychological distress among cancer patients, by employing the NCCN Distress Thermometer, and evaluates the relationship between distress levels and socio-demographic variables such as age, sex, socioeconomic status, literacy level, occupation, and clinical factors. This assessment seeks to identify key predictors of distress, providing insights that could guide tailored interventions to alleviate psychosocial suffering.

The findings from this study aim to advocate for the integration of routine psychosocial assessments into cancer care protocols, ensuring a holistic approach that addresses both the physiological and psychological needs of patients. Such integration is crucial for improving patient outcomes and enhancing the overall effectiveness of cancer treatment in resource-constrained settings. [5]

Methodology:

The present research was carried out at a tertiary care teaching hospital in North India. MBBS students in their final year collected data as part of their elective rotation in the Department of Community Medicine. The Institutional Ethical Committee granted approval for the study vide order no. ASCOMS/IEC/2024/Meeting-I/FM/64, dated 07-03-2024. The study encompassed both outpatients and inpatients during February 2024 who were diagnosed with cancer and who gave consent

for participation. The aim of the study was to evaluate the distress levels of patients at various stages of their cancer treatment, thus including not only those undergoing initial treatment but also those receiving any subsequent treatments, such as palliative care during the specified period. Data collection was performed via face-to-face interviews conducted by undergraduate medical students in the languages spoken by the patients.

Data collection utilized the National Comprehensive Cancer Network (NCCN) Distress Thermometer / Problem List (DT/PL) version 1.2024 [4]. Patient data, including demographics, were gathered and recorded in Microsoft Excel. The primary outcome measured was distress level, determined using the Distress Thermometer (DT). The DT is a one-item visual analog scale resembling a thermometer, with a range from 0 (no distress) to 10 (extreme distress). Patients rated their distress level based on the past week. A threshold score of ≥ 4 is recommended to indicate significant distress, as validated by prior studies on the instrument's sensitivity and specificity. [6] A recent meta-analysis demonstrated the DT's sensitivity at 82%, specificity at 73%, positive predictive value at 48%, and negative predictive value at 93%. [7]

The distress variables encompassed psychosocial concerns as delineated in the National Comprehensive Cancer Network Distress Thermometer (DT), which included physical symptoms (e.g., pain, sleep, fatigue, dietary issues, tobacco use), social dynamics (e.g., interactions with children and partner, fertility concerns, discrimination), emotional states (e.g., anxiety, fears, sadness, grief, anger), spiritual/religious considerations, and practical matters (e.g., childcare, housing, insurance/financial issues, transportation, work/school commitments, treatment decisions). These facets are acknowledged as prevalent psychosocial challenges encountered by cancer patients and were documented as either present ("yes") or absent ("no"). The case record form, constructed under expert guidance, gathered socio-demographic data related to the patient and pertinent disease-specific information. Demographic details encompassed age, sex, residence, religion, family type, diet, educational background, income, occupation, marital status, and insurance, all categorized as nominal variables. Clinical data recorded included the specific cancer diagnosis. The dataset underwent scrutiny to identify any omissions in critical psychosocial variables, and records with incomplete data were omitted from the analysis.

Statistical analysis:

The data were collected, tabulated, and analyzed using IBM SPSS Statistics 22.0. Distress was the outcome variable, coded as a categorical variable: none or mild (0–3), moderate (4–7), and severe (8–10). To evaluate the level of self-reported distress among the participants, descriptive statistics were calculated for demographic and clinical characteristics, psychosocial concerns, and distress levels. Sample characteristics

were summarized using means and standard deviations (SD) for continuous variables, and frequencies and percentages for categorical variables. Chi-square tests were employed to explore associations between distress levels and demographic as well as clinical variables. Multivariate linear regression models were used to determine the strength of association between the distress score (dependent variable) and various independent variables such as age, sex, residence, diet, type of family, educational status, religion, marital status, occupation, insurance and tumor category. Mean distress scores by type of malignancy were calculated, and the significance of differences between these means was determined using analysis of variance. Statistical significance for all tests and regression models was set at a P-value < 0.05.

Results:

Table 1, 275 cancer patients were analyzed for psychosocial distress. The majority of the patients were male (57.1%) and older than 60 years (52.4%). A substantial number of participants resided in rural areas (63.3%). Most patients were married (94.5%), had primary or lower educational levels (68.7%), and were not working (44.7%). The majority were financially dependent (55.6%) and non-vegetarian (68.7%). Almost all patients had some form of insurance (98.2%). The most common types of malignancy observed were Gastro-intestinal tumors (23.6%), followed by Lung (14.5%) and Genito-urinary cancers (16.7%).

Table 2 depicts that the most prevalent physical concern was fatigue, reported by 72.7% of patients, followed by loss or change of physical abilities (61.8%), and changes in eating habits (54.5%). In the emotional concerns category, changes in appearance were most common (64.0%), followed by worry or anxiety (45.8%), and anger (42.2%). Among practical concerns, taking care of others was reported by 49.5% of the participants, and financial concerns were noted by 27.3%.

Table 3 displays the level of distress varied among the patients, with 41.8% experiencing mild distress, 45.1% moderate, and 13.1% severe. Distress levels did not significantly differ by age group (p = 0.706), gender (p = 0.908), or other demographic variables including marital status and education. The type of malignancy also did not show a significant impact on distress levels, though some variance was observed across different types of cancer

The regression model (**Table 4**) showed a significant relationship only for the diagnosis variable (p = 0.034), indicating a small but statistically significant influence of the type of cancer on distress levels. Other socio-demographic factors did not show a significant impact on distress outcomes in the model.

Table 1: Patient characteristics (n=275):

Variable	n	%
Gender		
Male	157	57.1 %
Female	118	42.9 %
AgeGroup		
<40 years	27	9.8 %
40-59 years	104	37.8 %
>=60 years	144	52.4 %
Residence		
Urban	101	36.7 %
Rural	174	63.3 %
Religion		
Hindu	179	65.1 %
Non Hindu	96	34.9 %
MaritalStatus		
Unmarried	15	5.5 %
Married	260	94.5 %
EducationalStatus		
Primary /lower	189	68.7 %
Higher Secondary	39	14.2 %
Graduation /above	47	17.1 %
Occupation		
Agriculture	25	9.1 %
Unskilled/self employed	53	19.3 %
Formal sector	74	26.9 %
Not working	123	44.7 %
Family Type		
Nuclear	99	36.0 %
Joint	176	64.0 %
Financial Dependence		
Independent	122	44.4 %
Dependent	153	55.6 %
Diet		
Vegetarian	86	31.3 %
Non vegetarian	189	68.7 %
Insurance		
Yes	270	98.2 %
No	5	1.8 %
Type of Malignancy		
Breast	34	12.4 %
Lung	40	14.5 %
GIT	65	23.6 %
Genito-urinary	46	16.7 %
Gynae	23	8.4 %
Haematological	23	8.4 %
others	44	16.0 %
Total	275	100.0%
Mean Age (Range) in years & SD*	58.94 (9-89)	13.78
Mean Distress Score(Range)&SD*	4.34 (1-10)	2.37
* SD = Standard Deviation, n= number of patients		

Table 2: Concerns reported by patients in the past week according to problem area, n=275:

Problem area	Problem	Number reporting problem (n)	%
Physical Concerns	Pain	142	51.6
	Sleep	130	47.3
	Fatigue	200	72.7
	Tobacco use	81	29.5
	Substance use	37	13.5
	Memory or concentration	35	12.7
	Sexual health	41	14.9
	Changes in eating	150	54.5
	Loss or change of physical abilities	170	61.8
Emotional Concerns	Worry or anxiety	126	45.8
	Sadness or depression	43	15.6
	Loss of interest or enjoyment	51	18.5
	Grief or loss	21	7.6
	Fear	33	12.0
	Loneliness	22	8.0
	Anger	116	42.2
	Changes in appearance	176	64.0
	Feelings of worthlessness or being a burden	10	3.6
Social Concerns	Relationship with spouse or partner	35	12.7
	Relationship with children	28	10.2
	Relationship with family members	24	8.7
	Relationship with friends or coworkers	85	30.9
	Communication with health care team	5	1.8
	Ability to have children	59	21.5
	Prejudice or discrimination	1	0.4
	Taking care of myself	83	30.2
	Taking care of others	136	49.5

Practical Concerns	Work	67	24.4
	School	2	0.73
	Housing	1	0.4
	Finances	75	27.3
	Insurance	49	17.8
	Transportation	84	30.5
	Child care	45	16.4
	Having enough food	66	24.0
	Access to medicine	36	13.1
	Treatment decisions	24	8.7
Spiritual or Religious Concerns	Sense of meaning or purpose	13	4.7
	Changes in faith or beliefs	39	14.2
	Death, dying, or afterlife	9	3.3
	Conflict between beliefs and cancer treatments	4	1.5
	Relationship with the sacred	40	14.5
Other concerns*	Ritual or dietary needs	21	7.6
		26	9.5

(Other concerns include Concerns about managing any unexpected delayed side effects of treatment, Survivorship and Recurrence Monitoring, Adjustment to Life After Treatment)*

Table 5, average distress scores differed by type of cancer, with the highest mean distress scores observed in patients with other types of malignancies (mean = 5.0, SD = 2.33) and gastrointestinal cancer (mean = 4.6, SD = 2.24). Breast cancer patients reported the lowest mean distress score (mean = 3.1, SD = 1.83), which was statistically significant compared to other types of malignancy (p = 0.028).

Discussion

The demographic characteristics of our study population reveal a higher incidence of distress among patients who are older, non-working, and residing in rural areas. These findings are congruent with other studies indicating that older age and unemployment are associated with higher levels of psychological distress in cancer patients. For instance, a study by Charalambous and Kauta (2019) highlighted the vulnerability of older, unemployed cancer patients to higher distress levels due to diminished social support and financial instability. [8]

Table 3: Association of level of distress with Patient Characteristics: (n=275)

Variable	Level of Distress (n [%])			Total	χ^2	p- value
	Mild (0-3)	Moderate (4-7)	Severe (8-10)			
Age group						
<40 years	9 (33.3 %)	15 (55.6 %)	3 (11.1 %)	27	2.16	0.706
40-59 years	42 (40.4 %)	46 (44.2 %)	16 (15.4 %)	104		
>=60 years	64 (44.4 %)	63 (43.8 %)	17 (11.8 %)	144		
Gender						
Male	67 (42.7 %)	69 (43.9 %)	21 (13.4 %)	157	0.193	0.908
Female	48 (40.7 %)	55 (46.6 %)	15 (12.7 %)	118		
Residence						
Urban	48 (47.5 %)	41 (40.6 %)	12 (11.9 %)	101	2.03	0.363
Rural	67 (38.7 %)	82 (47.4 %)	24 (13.9 %)	174		
Marital Status						
Unmarried	8 (53.3%)	7 (46.7%)	0 (0.0%)	15	2.59	0.274
Married	107 (41.2%)	117 (45.0%)	36 (13.8%)	260		
Religion						
Hindu	69 (38.5%)	85 (47.5%)	25 (14.0%)	179	2.26	0.322
Non-Hindu	46 (47.9%)	39 (40.6%)	11 (11.5%)	96		
Educational Status						
Primary /lower	77 (40.7%)	87 (46.0%)	25 (13.2%)	189	1.83	0.766
Higher Secondary	20 (51.3%)	15 (38.5%)	4 (10.3%)	39		
Graduation /above	18 (38.3%)	22 (46.8%)	7 (14.9%)	47		
Occupation						
Agriculture	10 (40.0%)	12 (48.0%)	3 (12.0%)	25	0.605	0.996
Unskilled/self employed	23 (43.4%)	23 (43.4%)	7 (13.2%)	53		
Formal sector	33 (44.6%)	32 (43.2%)	9 (12.2%)	74		
Not working	49 (39.8%)	57 (46.3%)	17 (13.8%)	123		
Family Type						
Nuclear	42 (42.4%)	48 (48.5%)	9 (9.1%)	99	2.30	0.317
Joint	73 (41.5%)	76 (43.2%)	27 (15.3%)	176		
Financial Dependence						
Independent	57 (46.7%)	49 (40.2%)	16 (13.1%)	122	2.44	0.295
Dependent	58 (37.9%)	75 (49.0%)	20 (13.1%)	153		
Diet						
Vegetarian	29 (33.7%)	44 (51.2%)	13 (15.1%)	86	3.38	0.185
Non-Vegetarian	86 (45.5%)	80 (42.3%)	23 (12.2%)	189		
Insurance						
Yes	114 (42.2%)	120 (44.4%)	36 (13.3%)	270	2.62	0.269
No	1 (20.0%)	4 (80.0%)	0 (0.0%)	5		
Type of Malignancy						
Breast	21 (61.8%)	12 (35.3%)	1 (2.9%)	34	15.0	0.242
Lung	16 (40.0%)	18 (45.0%)	6 (15.0%)	40		
GIT	25 (38.5%)	32 (49.2%)	8 (12.3%)	65		
Genito-urinary	20 (43.5%)	17 (37.0%)	9 (19.6%)	46		
Gynecology	10 (43.5%)	10 (43.5%)	3 (13.0%)	23		
Hematological	11 (47.8%)	11 (47.8%)	1 (4.3%)	23		
Others*	12 (27.3%)	24 (54.5%)	8 (18.2%)	44		
Total	115 (41.8%)	124(45.1%)	36(13.1%)	275		

(Others* include Head & Neck cancers, Bone malignancies, Lymphomas and other Lympho-reticular malignancies)

Table 4: Multivariate linear regression model for the distress outcome and patient characteristics

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.385	2.309		.600	.549
Age Group	-.655	.434	-.184	-1.509	.133
Sex	-.479	.392	-.100	-1.223	.222
Residence	.225	.321	.046	.702	.483
Religion	-.265	.329	-.054	-.806	.421
Marital Status	1.123	.652	.108	1.722	.086
Educational Status	.089	.210	.029	.425	.671
Occupation	.242	.175	.102	1.385	.167
Family Type	.517	.307	.105	1.685	.093
Financial Dependence	.278	.352	.058	.791	.430
Diet	-.484	.347	-.095	-1.395	.164
Insurance	.305	1.108	.017	.275	.783
Diagnosis	.162	.076	.133	2.132	.034
Days since Diagnosis	.000	.000	-.023	-.380	.704
Age in Years	.014	.022	.080	.639	.523

Dependent Variable: Distress Score

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.255 ^a	.065	.015	2.3505

a. Predictors: (Constant), Age in Years, Diet, Days since Diagnosis, Diagnosis, Financial Dependence, Family Type, Residence, Marital Status, Insurance, Occupation, Religion, Educational Status, Sex, Age Group

Table 5: Average distress score by type of malignancy (n=275)

Cancer category	Mean Score	Standard deviation	n	F	p-value
Breast cancer	3.1	1.83	34	2.409	0.028
Lung cancer	4.6	2.76	40		
Gastro-intestinal cancer	4.6	2.24	65		
Genito-urinary cancer	4.3	2.45	46		
Gynecological cancer	4.2	2.66	23		
Hematological cancer	4.0	1.77	23		
Others *	5.0	2.33	44		

(Others include Head & Neck cancers, Bone malignancies, Lymphomas and other Lympho-reticular malignancies)*

In terms of distress associated with physical concerns, our study found that fatigue, changes in physical abilities, and changes in eating habits were the most reported problems. This is consistent with the literature, where cancer-related fatigue is often cited as one of the most common and debilitating symptoms affecting cancer patients' quality of life (Hofman et al. 2007, Goedendorp et al. 2008, Cella et al. 2011, Berger et al., 2018). [9-12] The high prevalence of fatigue and physical limitations suggests the need for integrated oncology care models that include symptom management and rehabilitative services to address these issues comprehensively.

Emotional concerns were also prevalent, with changes in appearance, worry or anxiety, and anger being most frequently reported. These concerns are reflective of the psychological turmoil that cancer diagnosis and treatment can induce. Schnur et al. (2009) reported that physical disfigurement and body image dissatisfaction due to cancer treatments (notably in breast and skin cancer) contribute to psychological distress.[13] The present study aligns with findings by Smith et al. (2020), which emphasized the psychological impact of physical changes post-cancer treatment, leading to significant distress and anxiety.[14] Our results underscore the importance of psychological interventions and support systems in oncology care to address these emotional issues effectively.

The multivariate regression analysis in our study revealed a significant relationship only for the diagnosis type with distress levels, suggesting that the type of cancer could influence distress outcomes. Zabora et al. (2001) found that patients with lung cancer and pancreatic cancer exhibited higher levels of distress compared to those with other cancers.[15] Carlson et al. (2004) in their research highlighted that cancer type, along with stage of disease, significantly impacts distress levels.[16] This is supported by the work of Smith et al. (2017), who found that patients with visible

and debilitating types of cancer (such as head and neck cancers) experienced higher distress levels due to the direct impact on their physical appearance and bodily functions.[17] The significant finding in the present study related to the type of malignancy affecting distress scores, especially higher in gastrointestinal and other cancers, could be attributed to the invasive nature and complex treatment regimens associated with these

cancers.

The overall mean distress score among cancer patients was reported to be 4.34. A meta-analysis by Mitchell et al. (2011) on psychological distress in cancer patients also reported a mean distress score of 4.0 (range 3-5). [18] This aligns closely with our study's findings. However, studies conducted in different cultural or regional settings may report varying distress scores. For example, a study by Alacacioglu et al. (2009) in Turkey reported mean distress scores around 5.0, which is higher and suggests regional disparities in patient experiences and healthcare support.[19] Delgado-Guay et al. (2009) found higher distress scores averaging around 5.2 in patients with advanced cancer, reflecting the intense emotional and physical challenges faced at terminal stages.[20]

Comparatively, our results show lowest distress in breast cancer patients which contradicts some previous studies where breast cancer was associated with significant psychological distress.[21] However, the relatively lower distress scores in our study might be due to effective coping strategies, support systems, or differences in cultural and social factors influencing the perception of illness.

Lastly, practical concerns such as caregiving responsibilities and financial issues were significant sources of distress. This reflects broader trends highlighted in the literature where financial toxicity and caregiving burden are critical issues impacting cancer patients' mental health and overall well-being (Zafar et al., 2019). [22]

Overall, our study contributes valuable insights into the multidimensional nature of distress experienced by cancer patients. It reinforces the need for comprehensive care frameworks that integrate medical, psychological, and social support services tailored to the diverse needs of the cancer population. Further research is recommended to explore the mechanisms through which these variables influence distress to develop targeted interventions for improving patient outcomes.

Limitations:

The cross-sectional design of this study offers a snapshot of distress among cancer patients but cannot establish causality or track changes over time. Longitudinal studies would be necessary to observe how distress evolves throughout the cancer care continuum. Reliance on self-reported measures via the Distress Thermometer may introduce bias. Additionally, the study could benefit from including variables like psychological traits and mental health history to capture more comprehensive determinants of distress. Despite a substantial sample size, the low explanatory power of the regression model highlight the complexity and individual variability of psychological distress in cancer patients.

Future recommendations:

Future research should consider clinical factors like cancer stage, treatment types, and side effects, alongside psychological support mechanisms and social networks. Investigating behavioral aspects such as physical activity and meditation, as well as patient-specific variables including comorbidities, coping strategies, health literacy, and personal beliefs, could enrich our understanding of distress in cancer care. Incorporating these factors could lead to a more comprehensive model, offering deeper insights into the predictors of distress and informing more effective interventions to support cancer patients.

Conclusion

This study is the first to explore predictors of psychological distress among cancer patients in the Jammu region, revealing that two-thirds of participants experienced moderate to severe distress. The results underscore the need for routine distress screenings and targeted referrals for enhanced care. Future research should use longitudinal designs to track distress over time and incorporate a wider range of variables like psychological traits and past mental health, aiming to deepen our understanding of distress dynamics and improve the overall management of distress in this vulnerable population, ultimately enhancing patient outcomes.

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