Section: Radiation Oncology

Original Research Article

FINANCIAL TOXICITY AND ITS IMPACT ON MENTAL HEALTH IN CANCER PATIENTS UNDERGOING CURATIVE-INTENT TREATMENT: A CROSS-SECTIONAL INSTITUTIONAL STUDY

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ABSTRACT

Background: The rising cost of cancer care has led to increasing recognition of financial toxicity as a major adverse effect of treatment. Financial toxicity encompasses both objective financial burden and subjective financial distress, which may adversely affect mental health, treatment adherence, and quality of life. **Objectives:** To evaluate the association between financial toxicity and mental health status among cancer patients undergoing curative-intent treatment. **Materials and Methods:** A hospital-based cross-sectional study was conducted among 50 adult cancer patients receiving curative-intent treatment under insurance coverage. Sociodemographic, socioeconomic, occupational, and clinical data were collected. Financial toxicity was assessed using the Comprehensive Score for Financial Toxicity (COST) questionnaire, while psychological distress was evaluated using the 12-item General Health Questionnaire (GHQ-12). Correlation analysis was performed to assess the relationship between financial toxicity and mental health. **Results:** A statistically significant positive correlation was observed between COST and GHQ-12 scores ($r = 0.68$, $p < 0.01$), indicating worsening psychological distress with increasing financial toxicity. Male patients demonstrated higher mean GHQ-12 scores (22.3) compared to females (15.7). Patients from lower socioeconomic strata exhibited higher psychological distress with lower COST scores. Daily wage workers were particularly vulnerable, with consistently elevated GHQ-12 scores (>20). **Conclusion:** Financial toxicity significantly impacts mental health in cancer patients undergoing curative treatment. Routine assessment and early multidisciplinary interventions addressing financial stress may mitigate psychological morbidity and improve treatment adherence and quality of life.

INTRODUCTION

Advances in cancer diagnosis and treatment have significantly improved survival outcomes; however, these gains have been accompanied by rising treatment costs, imposing substantial financial burden on patients and their families. The term financial toxicity describes the economic hardship and psychological distress associated with cancer care and is increasingly recognized as a clinically relevant, non-physical adverse effect influencing treatment adherence, mental health, and quality of life.[1]

Financial toxicity includes both direct medical expenses and indirect costs such as loss of income, travel, accommodation, nutritional expenses, and caregiver dependency, which may persist beyond treatment completion and adversely affect survivorship.[2] Patients experiencing financial distress may delay treatment initiation, miss follow-up visits, or discontinue therapy prematurely, thereby compromising treatment outcomes.[3] Financial toxicity is also strongly associated with anxiety, depression, emotional distress, and reduced health-related quality of life.[4]

The burden is particularly pronounced in low- and middle-income countries like India, where out-of-pocket expenditure remains high and loss of income during treatment is common.[5,6] Despite its importance, financial toxicity is not routinely

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assessed in oncology practice. This study evaluates the association between financial toxicity and psychological distress among cancer patients receiving curative-intent treatment.

Objectives

Primary Objective

To assess the correlation between financial toxicity and mental health status in cancer patients receiving curative-intent treatment.

Secondary Objectives

To evaluate the influence of gender on financial toxicity and psychological distress

To assess the impact of socioeconomic status on financial and mental health outcomes

To examine the effect of occupational status, particularly daily wage employment, on psychological morbidity

To identify patient subgroups at increased risk of financial stress–related mental health impairment.

MATERIALS AND METHODS

Study Design and Setting

This hospital-based cross-sectional observational study was conducted at a tertiary care cancer center in South India providing comprehensive oncology services.

Study Population

Fifty adult cancer patients undergoing curative-intent treatment were enrolled.

Inclusion Criteria

- Age ≥18 years
- Histologically confirmed malignancy
- Receiving curative-intent treatment
- Covered under government or private health insurance schemes
- Provided written informed consent

Exclusion Criteria

- Patients receiving palliative-intent treatment
- History of diagnosed psychiatric illness prior to cancer diagnosis
- Inability to complete questionnaires

Data Collection

Data were collected using a structured proforma and included age, gender, socioeconomic status, occupational status, cancer diagnosis, and treatment modality. Socioeconomic status was classified based on institutional criteria incorporating income, occupation, and living conditions.

Assessment Tools

Financial Toxicity

Financial toxicity was assessed using the Comprehensive Score for Financial Toxicity (COST) questionnaire, an 11-item validated patient-reported outcome measure designed to evaluate perceived financial distress related to cancer treatment. Lower scores indicate greater financial toxicity.[7]

Mental Health Assessment

Psychological distress was assessed using the 12-item General Health Questionnaire (GHQ-12), a validated screening tool for detecting emotional distress and non-psychotic psychiatric morbidity. Higher scores indicate greater psychological distress.[8]

Statistical Analysis

Descriptive statistics were used to summarize patient characteristics. Pearson's correlation coefficient was used to assess the relationship between COST and GHQ-12 scores. A p-value <0.05 was considered statistically significant.

RESULTS

Patient Characteristics

A total of 50 patients were included, with equal gender distribution (25 males and 25 females). All patients were receiving curative-intent treatment and were covered under health insurance schemes. A majority belonged to lower socioeconomic strata, and daily wage workers constituted a predominant occupational subgroup.

Baseline Characteristics of the Study Population is shown in Table 1

Correlation Between Financial Toxicity and Mental Health

A statistically significant positive correlation was observed between COST and GHQ-12 scores ($r = 0.68$, $p < 0.01$), indicating that increasing financial toxicity was associated with worsening psychological distress.

Association Between COST and GHQ-12 Scores is shown in Table 2

Subgroup Analysis

Male patients demonstrated higher mean GHQ-12 scores (22.3) compared to female patients (15.7). Patients from lower socioeconomic strata exhibited higher GHQ-12 scores with lower COST scores, suggesting increased vulnerability. Daily wage workers showed COST scores below 15 with GHQ-12 scores consistently above 20, indicating severe financial and psychological burden.

Table 1: Baseline Characteristics of the Study Population

Variable	Number
Gender (Male/Female)	25/25
Treatment Intent	Curative - 100%
Insurance Coverage	100%
Daily Wage workers	74%
Low socioeconomic status	80%

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Table 2: Correlation Between Financial Toxicity and Mental Health Scores
Higher financial toxicity associated with increased psychological distress

Parameter	Value
Pearson correlation coefficient (r)	0.68
p Value	<0.01

DISCUSSION

This study demonstrates a strong association between financial toxicity and psychological distress among cancer patients undergoing curative-intent treatment. The findings reinforce the concept of financial toxicity as a clinically relevant adverse effect of cancer therapy, comparable in importance to physical toxicities.[1,2]

The observed correlation between financial distress and mental health impairment highlights the bidirectional relationship between economic stress and psychological morbidity. Financial concerns may exacerbate anxiety and depressive symptoms, while mental health impairment may reduce coping capacity and perceived financial resilience.[4]

Higher psychological distress among male patients may reflect sociocultural expectations regarding financial responsibility and employment. Patients from lower socioeconomic backgrounds demonstrated disproportionate psychological morbidity despite lower COST scores, possibly due to limited financial buffers and social support. Daily wage workers were particularly vulnerable, as even brief interruptions in employment can result in immediate financial insecurity.

These findings are consistent with existing literature emphasizing the multidimensional impact of financial toxicity on treatment adherence, mental health, and quality of life.[3,5] Addressing financial toxicity requires a multidisciplinary approach incorporating financial counseling, psycho-oncology services, social work support, and cost-conscious treatment planning.

Institution-based mitigation strategies such as hypofractionated radiotherapy schedules, daycare chemotherapy, subsidized transportation, caregiver accommodation, vocational rehabilitation, and teleconsultation-based follow-up may substantially reduce indirect costs and associated distress.

Limitations

Small sample size

Single-center study

Cross-sectional design limits causal inference

Clinical Implications

Routine screening for financial toxicity and psychological distress should be integrated into oncology practice. Early identification of high-risk patients allows timely multidisciplinary intervention, potentially improving treatment adherence, mental health outcomes, and overall quality of life.

CONCLUSION

Financial toxicity is a significant psychosocial determinant of mental health in cancer patients undergoing curative treatment. Incorporating structured financial assessment and supportive interventions into routine oncology care may reduce psychological morbidity and improve survivorship outcomes.

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