

The Biopsychosocial Effects of Cancer: How Disease Progression Influences Patient Mental Well-being

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Abstract

Cancer significantly affects individuals biologically, psychologically, and socially. Treatments such as chemotherapy and surgery often lead to physiological issues including fatigue, pain, and immune dysfunction. Concomitantly, patients face mental health challenges such as depression, anxiety, and emotional trauma, exacerbated by uncertainty in disease prognosis. Despite advances in treatment, psychosocial aspects of care are frequently overlooked. This paper synthesizes case-based evidence to underline the importance of biopsychosocial care in oncology and calls for integrated healthcare strategies that address all dimensions of patient wellness.

Keywords—Cancer, Biopsychosocial Model, Psycho-oncology, Mental Health, Quality of Life, Survivorship

I. INTRODUCTION

Cancer is a multifaceted disease with physical, emotional, and social consequences. While the biological aspects often dominate clinical focus, the psychological and social impacts are equally critical. The biopsychosocial model offers a holistic approach by integrating these dimensions. This paper explores how disease progression impacts patient mental well-being through two case studies.

II. LITERATURE REVIEW

Research has shown a high prevalence of psychological disorders among cancer patients, including depression, anxiety, and post-traumatic stress disorder (PTSD). These are often linked to physical symptoms, treatment side effects, and social stressors. Moreover, biological changes like inflammation are increasingly understood to contribute to mental health symptoms. Literature supports biopsychosocial approaches for improving overall patient outcomes.

III. METHODOLOGY

This study utilizes a case study approach, combining qualitative and quantitative data. Psychological assessments and clinical indicators such as hemoglobin, WBC, platelet counts, and Karnofsky performance status were measured before and after three chemotherapy cycles to assess changes.

IV. CASE STUDIES

A. Case Study 1 – Breast Cancer Patient: Mrs. A (pseudonym), 46 years old, diagnosed with Stage III Infiltrating Ductal Carcinoma. Treatment: Modified Radical Mastectomy followed by CAF chemotherapy (Cyclophosphamide, Adriamycin, 5-Fluorouracil).

Pre-Treatment Data:

- Hemoglobin: 12.5 g/dL
- WBC: 6,500/ μ L
- Platelets: 250,000/ μ L
- Karnofsky Score: 90%
- Mental Health: Mild anxiety and depression; good family and community support

Post-Treatment Data:

- Hemoglobin: 10.2 g/dL
- WBC: 3,500/ μ L
- Platelets: 190,000/ μ L
- Karnofsky Score: 70%
- Mental Health: Moderate depression; withdrawal and isolation

Discussion: The case demonstrates the physical and psychological burden of chemotherapy. Emotional well-being declined despite ongoing clinical management, pointing to the need for psychosocial interventions.

B. Case Study 2 – Colon Adenocarcinoma Patient: Mr. J (pseudonym), 51 years old, diagnosed with Stage IV colon adenocarcinoma. Treatment: Surgery followed by palliative chemotherapy and radiotherapy.

Pre-Treatment Data:

- Tumor: Poorly differentiated with mesocolon extension
- Mental Health: Depression, irritability, and family conflict

Post-Treatment Data:

- Symptoms: Pain, insomnia, sexual dysfunction
- Mental Health: Suicidal thoughts, emotional lability, persistent sadness
- Family: Continued discord, poor emotional support

Discussion: Despite medical treatment, psychological deterioration and strained family dynamics severely impacted the patient's quality of life. This case reinforces the need for holistic care.

V. RESULTS AND DISCUSSION

Both cases highlight a decline in mental health metrics corresponding to treatment progression. Social support emerged as a critical variable influencing recovery and emotional resilience. The data affirm the need for interdisciplinary care that includes mental health services and family counseling.

VI. CONCLUSION

Cancer treatment must transcend biological intervention. Biopsychosocial strategies can enhance patient well-being, improve treatment adherence, and elevate quality of life. Future research should investigate socioeconomic and cultural factors influencing psychological outcomes in oncology.

VII. AUTHOR CONTRIBUTIONS

Jnanika C and Kishan K contributed equally to study design, data collection, analysis, and manuscript preparation. Patients who permitted case documentation.

IX. CONFLICTS OF INTEREST

The authors declare no conflict of interest.

X. FUNDING STATEMENT

This research received no external funding.

XI. ETHICAL STATEMENT

Ethical standards were upheld throughout the study, and informed consent was obtained from all participants.

XII. DATA AVAILABILITY

The data supporting this study are available upon request.

XIII. REFERENCES

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