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## Depression and breast cancer; postoperative short-term implications

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# Depression and breast cancer; postoperative short-term implications

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## Research article

# Depression and breast cancer; postoperative short-term implications

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### Abstract

**Introduction.** Pre and postoperative psychological status is an important aspect in patients diagnosed with breast cancer, having a great impact on their quality of life. Considering the high incidence, mortality rate, and the added effect on self-image, breast cancer is considered a major stressor for women worldwide, almost 50% of these experiencing psychological distress.

**Methods.** Our study retrospectively analysed the relationship between preoperative diagnosed depression and the number of medical care days, on patients diagnosed with breast cancer and admitted for surgical treatment in Colțea Clinical Hospital between 2017 and 2018.

**Results.** We had 62 patients scheduled for breast cancer surgery, who had been preoperatively evaluated using psychological tests. Of those patients, 18 had scores indicating significant symptoms of depression (moderate or severe symptoms, HDSR >17). Patients with high HDSR scores needed an 18.4% longer hospitalization than patients without symptoms of depression. They also had 35.4% more ambulatory visits in the month following discharge, and a higher incidence of postoperative complications.

**Conclusions.** There seem to be both physiological and somatic determinants responsible for the need of prolonged medical care, but the mechanisms responsible for these effects remain unclear. Identifying high-risk patients could not only lower the postoperative morbidity, but also increase the therapeutic outcomes.

### Keywords

: breast cancer, mood disorder, anxiety, depression, postoperative implications

### Highlights

- ✓ surgical patients with depression might have poorer short-term outcomes, while the therapy often requires more resources
- ✓ these patients are more likely to develop postoperative complications, which do not necessarily require reintervention, but prolonge the hospitalization period

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## Introduction

Depression is one of the most common mental disorders with a life-threatening potential. It is characterized by a triad of symptoms described as depressed mood, fatigue and inability to experience pleasure from enjoyable activities (1).

Depression might appear in any stage of life, being influenced by a combination of risk factors such as genetic, biological, psychological, and environmental elements (2).

Considering its high incidence, mortality rate, and the influence on self-image, breast cancer is considered a major stressor for women worldwide, almost 50% of these experiencing a degree of psychological distress (1).

After a breast cancer diagnosis, anxiety level increases. The need for subsequent surgery further represents a stressful situation to the patient and may therefore call for a risk-benefit assessment (3). This may trigger a preoperative or a postoperative depression episode (4, 5). Postoperative depression can also be triggered by anesthetic medication that increases the anxiety state, by post-surgical stress syndrome, or by mobility restriction.

Literature review suggests that depression has a great impact not only on the patient's quality of life, but also on immune status, cognitive status, pain, and overall surgical mortality (6), but few studies include attention to such psychological issues in the pre and post-surgical stages (4–6).

## Materials and methods

Our study retrospectively analysed patients diagnosed with breast cancer and admitted for surgical treatment in the "Colțea" Clinical Hospital between 2017 and 2018. Of these patients we selected only those having a preoperative psychological consultation and evaluation.

The psychological consultation focused on depression, using the Hamilton Depression Scale/HRSD. This test contains 17 items that measure the intensity of the symptomatology related to depressive disorders, being a good indicator of the overall severity of the depressive syndrome. The items were selected from the psycho-diagnostic paradigm and scientifically validated by clinical evaluation, being part of the CSE (Clinical Evaluation System). The scale includes items for evaluating several (cognitive, behavioural, but mostly somatic) elements, based on observations regarding the patient's current state, and supplemented by specific questions. Using this scale, depressive moods, vegetative and somatic symptoms of depression, as well as comorbid anxiety symptoms can be assessed.

HRSD test is approved and standardized for the Romanian population as follows: scores below 7 indicate the absence of depression, between 7-17 mild depression, between 18-24 moderate depression, and over 25 severe depression.

We then statistically analysed the Hamilton scores against the number of hospitalization days during the first admission, and against the number of further visits or readmissions in the consecutive month. The timeframe had been chosen to evaluate medical care limited to the perioperative period, excluding in this way other adjuvant therapies which might be needed in the breast cancer management protocol, but usually not performed in the immediate post-operative stage.

Repeated hospitalizations were investigated taking into account diagnoses and procedures performed for these new presentations, with a given limitation, namely that they were admitted at the same medical institution.

## Results

Our sample included 62 patients scheduled for breast cancer surgery who were evaluated using psychological tests. Of those patients, 18 had scores indicating moderate to severe depression (HDSR symptoms >17).

The analysis revealed that patients who had a preoperative HRSD score higher than 17 needed 18.4% longer hospitalization than patients without symptoms of depression. Also, they had 35.4% more ambulatory visits in the month following discharge.

We further analysed stage of the disease, duration of surgery, and post-operative complications. Using ANOVA, we found a higher probability of postoperative complications for patients with HRSD scores >17. The most frequent secondary diagnoses were infection, prolonged lymphorrhagia, and post mastectomy pain syndrome.

## Discussion

This study examined the relationship between preoperative symptoms of depression and complications occurring during hospitalization and one month later, following discharge. In this perioperative timeframe, no other adjuvant therapy was performed.

We compared patients who reported significant symptoms of depression before cancer surgery to determine if depression would be able to predict poorer immediate postoperative outcomes, and/or could determine multiple visits and readmissions.

After statistically adjusting the findings (to take into consideration possible effects of stage of disease and disease-specific risk factors), we found that patients who reported significant symptoms of depression before surgery were more likely to have a postoperative complication that did not require re-intervention, but did require prolonged hospitalization. Depressed patients also needed more ambulatory visits in the month following discharge.

There seem to be both physiological and somatic determinants responsible for the need for prolonged medical care, but the mechanisms responsible for these effects remain uninvestigated. One explanation might be the delay in postoperative healing due to depressive

symptomatology, which decreases recovery resources through sleep disorders, fatigue, low adherence to self-care, and lack of energy (7, 8).

Literature review findings state that depression influences immune status and predisposes to infections. The activation of the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system creates a high level of cortisol and catecholamine that lower the immune system's activity (9). This results in decreasing total number of lymphocytes, especially T helper lymphocytes and also decreasing NK cell activity. Along with increasing the risk of infections, a low immune response might also promote tumor development and progression (6, 10).

Anxiety to pain represents one of the most common reactions during the perioperative period. Even though pain killers are administered postoperatively, most patients suffer from moderate pain that, besides altering their quality of life, affects their ambulation and leads to an increased incidence of complications, increasing thus overall morbidity and mortality (4). Studies suggest that preoperative depression is correlated with increased postoperative pain and increased use of analgesics (11). Also, postoperative pain might be a trigger for depression by altering dopamine and serotonin signals which is amplified by a vicious circle (12, 13).

## Conclusions

Our analysis suggests that patients undergoing surgery with symptoms of depression present a lower compliance to treatment and are at higher risk for poorer short-term outcomes. Thus, patients who had significant symptoms of depression before undergoing surgery were at increased risk for postoperative complications and required frequent ambulatory visits in the postoperative period.

Identifying preoperatively high-risk patients might be a beneficial approach for effectively lowering postoperative morbidity. It would be necessary to establish a specific modality to better target interventions and to help patients with symptoms of depression prior to surgery. The aim is to improve quality of life of patients, while maximizing the benefits of surgical treatment and limiting unnecessary prolonged hospitalizations or repeated readmissions.

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