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## Psychosocial Factors and Cancer

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Psychological and social aspects of life, which have been collectively called *psychosocial factors*, have long been known to play an influential role in shaping physical health and disease. Included in this relatively broad “umbrella” term are processes that involve a person’s mental state, psychological tendencies, and surrounding social environment. Some examples of psychosocial factors include acute stress, chronic stress, coping, perceived control, neuroticism, hostility, anxiety, rumination, hopelessness, negative affect, depression, social class, social conflict, social isolation, self-efficacy, and self-esteem. This article provides an overview of research on psychosocial factors and cancer. More specifically, it summarizes different types of cancer, known associations between psychosocial factors and cancer, biological pathways that link psychosocial factors and cancer, and psychosocial interventions that have been shown to alter these biological processes and improve clinical outcomes.

Cancer is not a singular disease. Rather, cancer is a term that describes a group of diseases that, while similar in gross phenotype, are quite heterogeneous in etiology and pathophysiology. Cancers are broadly categorized according to the type of tissue in the body where they originate. Cancers that originate in epithelial cells – that is, cells that line the outer surface of an organ, such as skin cells – are called *carcinomas* and are the most prevalent; *sarcomas* are cancers that originate in the connective or supportive tissues of the body (e.g., bone, muscle); *lymphomas* are cancers

that stem from abnormal immune cells in the body’s lymphatic vessels; finally, *leukemias* are cancers that stem from malignant immune cells in blood (i.e., white blood cells) or other blood-forming cells that occupy the bone marrow. All told, the National Cancer Institute currently recognizes the existence of more than 100 distinct cancers that can occur in the human body.

An association between psychosocial factors and cancer has been pondered at least since the 2nd century. At that time the Greek physician, Claudius Galen, believed that women with a depressed or “melancholic” disposition were more prone to getting cancer. When examined prospectively over time, the majority of modern research suggests that no reliable link exists between psychosocial factors and cancer *incidence* – that is, the onset of cancer. However, a growing body of research shows that stress-related psychosocial factors play a role in cancer *progression* – that is, the rate at which an existing cancer in the body worsens or causes mortality. In this latter regard, studies of breast cancer are by far the most common. This research has shown that several psychosocial factors including psychological distress, anxiety, hostility, lack of emotional expression, low overall quality of life, and

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poor familial and romantic relationship quality are associated with shorter survival time in breast cancer patients. The nature of this relationship is complex, though, as some studies have found that low quality of social support, higher anxiety, and higher hostility are associated with *better* survival rates.

Associations between psychosocial factors and clinical outcomes has been examined in other cancers as well, including lung cancer, colorectal cancer, immune cell cancers, skin cancers, female reproductive cancers (e.g. ovarian cancer, cervical cancer, uterine cancer), prostate cancer, stomach cancer, liver cancer, head and neck cancer, and brain cancers. In studies that have examined lung cancer progression, personality factors such as defensiveness and anger suppression or repression, which has been called "antiemotionality," and other psychosocial factors such as psychological distress and poorer quality of life have been shown to predict shorter survival time. In studies of immune cell cancers, depressive mood, depressive coping styles, psychological distress, poor social support, and poor quality of life have been found to predict shorter survival time. Fewer progression studies exist for each of the other cancers listed above and the results of these studies are more mixed.

A key question on the topic of psychosocial factors and cancer involves how exactly psychosocial factors impact clinical outcomes in this disease. This is a complicated issue, given that many different psychosocial factors have been implicated in cancer and, in addition, many different types of cancer exist. Nevertheless, some consensus has emerged suggesting that psychosocial factors impact clinical outcomes in cancer at least in part by influencing activity of the autonomic nervous, endocrine, and immune systems. More specifically, psychosocial factors that involve negative affectivity and social stress are thought to activate two of the body's main stress systems – namely, the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis, which affect components of the immune system involved in

inflammation. Inflammation, in turn, is known to be involved in tumor growth, as well as in promoting several distressing symptoms that at least some cancer survivors experience, such as fatigue, depression, difficulty concentrating, increased pain sensitivity, and social-behavioral withdrawal. The exact mechanisms that link psychosocial factors with inflammation and other tumor promoting physiology are still being elucidated, and this research is being conducted using a combination of methods that include clinical populations, pre-clinical animal models, and basic *in vitro* techniques.

Some of the most potentially important work on psychosocial factors and cancer has focused on developing interventions that can impact psychosocial and biological pathways to improve clinical outcomes. A landmark randomized controlled trial (RCT) that began in the late 1970s showed that 12 months of weekly group-based supportive expression therapy extended the survival of breast cancer patients by 2-fold after 10 years of follow-up. Since then, two additional RCTs have examined the effect of psychosocial interventions on clinical outcomes in cancer, as well as psychological adaptation to having the disease and biological processes that are relevant for its progression. The first of these studies randomly assigned melanoma patients to 6 weeks of group-based therapy that focused on problem-solving skills, stress management, and psychological support versus a standard care control group. During the 10 years of follow-up, the experimental group showed less negative mood, more immune system processes that inhibit disease progression, and lower rates of cancer recurrence and mortality. A second study randomized breast cancer patients to 4 months of weekly group-based therapy followed by 8 months of monthly group-based therapy that focused on reducing stress, improving mood, altering health behaviors, and maintaining adherence to cancer treatment. During 11 years of follow-up, the experimental group showed less distress, more immune system processes that inhibit disease progression, and

less cancer recurrence and mortality. In conclusion, then, there is evidence that psychosocial factors influence biological and clinical outcomes in cancer, and that certain psychosocial interventions can impact these processes and yield positive effects.

### Further Readings

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