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**Mind and cancer - do psychological factors cause cancer?**

C. Johansen. Danish Cancer Society, Department of Psychosocial Cancer Research, Copenhagen, Denmark

This review will illustrate the use of epidemiological methods in the study of the association between psychological factors and risk of cancer. The presentation will include data from recently conducted studies.

(i) Psychological stress has been claimed to contribute to the onset of cancer and to increase mortality from a number of non-malignant diseases. We investigated the effect of a genuine psychological stressor, i.e. cancer in a child, on the incidence of cancer and mortality from non-malignant diseases of 11 231 parents in a Danish nationwide population-based study.

(ii) Personality traits were among the psychological factors that early in the history of psychosocial research were discussed as a possible risk factor. We analysed the effect of personality, as measured by the Eysenck Personality Inventory, on the incidence of cancer among 1 031 persons who participated in a prospectively Danish health survey in 1976 and followed up for 20 years.

(iii) Depression is widely believed to cause cancer, but epidemiological evidence is inconsistent. We conducted a nationwide cohort study based on linkage between registries and followed up for cancer all 89 491 adults admitted for psychiatric treatment of an affective disorder between 1969 and 1993.

The discussion of the results of these studies will focus on the difference between case-control studies and cohort studies in psychosocial cancer research. The former type of studies relies on anamnestic information and methodological problems are a possible explanation of the observed associations in these studies. Cohort studies that rely on information compiled before cases of cancer occur almost totally excludes the possibility of observational or recall biases.

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**Coping with cancer - what do we know (and why does it matter)?**

M. Watson. Royal Marsden Hospital, Department of Psychological Medicine, Sutton, United Kingdom; Institute of Cancer Research, Psychology Research Group, Sutton

Coping is an attempt to ward off or reduce the negative impact of stress so that distress may be contained or minimised. Considerable distress is associated with cancer. There is evidence that type of coping response has an impact on patients' quality of life. There is more recent evidence that it has an impact in survival [1]. How patients cope or adapt to cancer is important to ascertain. Patients who cannot cope with chemotherapy may well have their treatment delayed or stopped early. Patients who cannot cope with chronic fatigue may find their return to work or normal life inordinately difficult. Alongside these issues it is important to provide scientific evidence to support what we know about coping so we can decide how much it matters. Data will be presented from our recent research on coping and survival. In our previous studies we have assessed coping using the Mental Adjustment to Cancer Scale (MAC). A helpless/hopeless attitude was found to have a moderate adverse impact on survival from breast cancer at 5 years of follow-up. Our recent studies include an assessment of the impact of coping on survival at 10 year follow-up and a re-analysis of the methods used for assessing coping. Our new data strengthen the effect previously reported; namely that of an adverse impact on survival of a helpless response and confirmation that a positive "fighting spirit" has no survival benefit.

**Reference**

[1] Watson et al The Lancet, 1999, 354, 1331-1336.

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**Rehabilitation of cancer patients - any scientific evidence?**

U. Koch. Universitätsklinikum Hamburg-Eppendorf, Inst. und Poliklinik für Medizinische Psychologie, Hamburg, Germany

The course of illness in cancer is accompanied by manifold physiological and psychosocial effects, including physical weakness, functional restrictions, depression and anxiety, effects on self-esteem, pain, and negative professional consequences. Support in coping with these disabilities and handicaps could be defined as the primary intention of rehabilitation. Rehabilitative measures should thus focus on achieving the most extensive possible restoration of health, psychological and social function and aim to provide a stabilization of personal, familiar, social and occupational situations.

While in most industrialized nations rehabilitative services traditionally exist for patients with neurological or orthopaedic illnesses, cancer rehabilitation services are only available in a few countries. Furthermore, where these cancer rehabilitation services do exist, they vary greatly regarding target groups, treatment intensity, and setting.

The presentation will provide an analysis of the methodology and results from the outcome evaluation studies in the field of cancer rehabilitation published to date. A large percentage of these studies were performed in Germany, where cancer rehabilitation has a long tradition and is offered in an inpatient setting. It will be shown that there is a general lack of controlled studies. This is due to legal and institutional factors which do not allow randomized assignment of rehabilitants to treatment and non-treatment. Thus, in most of the studies participants and non-participants must be compared. This significantly limits the validity of the study results. At the same time, there is a high degree of disagreement in the studies concerning the goal criteria of rehabilitation.

The outcome of cancer rehabilitation measures obviously varies according to the chosen criteria. Several studies show significant progress in different dimensions of quality-of-life (like depression, anxiety, fatigue), attaining a moderate effect size. The effects seem to be less pronounced if activities of daily life were the criteria. There seems to be little to no effect on the professional consequences.