

Topic Page: [Radiotherapy](#)

Definition: **radiotherapy** from *Collins English Dictionary*

n

1 the treatment of disease, esp cancer, by means of alpha or beta particles emitted from an implanted or ingested radioisotope, or by means of a beam of high-energy radiation Compare chemotherapy

> radiotherapeutic (,reɪdɪəʊ,θerə'pjʊ:tɪk) *adj*

> ,radio,thera'peutically *adv*

> ,radio'therapist *n*

Summary Article: **Radiotherapy**

From *Cambridge Handbook of Psychology, Health and Medicine*

Radiotherapy is a common treatment modality for cancer with over 50% of individuals receiving radiation at some time during the course of their disease. Despite the extent of its use and the length of time it has been available our knowledge is limited in how it affects individuals not only physically but also emotionally and socially. Radiotherapy can cause problems through side effects of treatment. These can be temporary symptoms (acute effects) that occur during or in the months following treatment, but also longer lasting effects (late effects) that can develop many months to years following radiotherapy. Much of the knowledge that exists as to how people react or cope with radiation treatment is focused on the physical effects and much less on the psychological responses. However radiation reactions can often exacerbate existing functional or emotional difficulties that can be as a result of the disease, age or a combination of therapies. This chapter explores the incidence and specific psychological problems identified as a result of radiotherapy treatment for cancer. The evidence is reviewed for psychosocial interventions for those undergoing or completing radiotherapy.

The need to include information representing patients' views of their condition has become more important as survival from cancer has gradually increased. Evaluations of treatment modalities have psychological and social consequences. Clearly, with cancer treatment, a person's physical health status contributes much to the psychological impact of a treatment modality. However, factors that should also be considered are the emotional impact and the effect cancer treatment has on social and personal relationships.

Incidence of psychosocial problems

Assessing the psychological impact of cancer treatment on patients is expressed in terms of current definitions of anxiety and depression. Early studies of psychological morbidity suggest that 20 to 35% of all individuals with cancer experience anxiety and/or depression during the course of their therapy (Fallowfield, 1990) (see 'Cancer: general'). Many studies have identified the emotional and physical distress associated with radiotherapy (Forester *et al.*, 1978; Christman, 1990; King *et al.*, 1985). However, the proportion of people who experience distress or have psychological problems is unclear. Peck and Boland's (1977) much quoted work first identified that patients fear and misunderstand the use of radiation treatment and have negative attitudes to its effectiveness as cancer therapy. They interviewed people ($n = 50$) undergoing radiotherapy and found most experienced mild to moderate

anxiety. They determined that at the start of treatment 60% experienced anxiety. This rose to 80% after treatment was completed. However, much has changed in health care since this study was conducted, with greater openness about cancer diagnosis and information-giving prior to treatment. Maraste *et al.* (1992) identified that 15% of women undergoing adjuvant breast irradiation experienced distress as anxiety rather than as depression or other psychological states. More recent work has identified that individuals still fear radiation and consider it negatively (Hammick *et al.*, 1998). However, Hammick *et al.*'s small study does not identify whether this attitude influences people's experiences or distress more widely. Young & Maher (1992), in an audit of a counselling service, found that 44% of those attending a British radiotherapy centre had abnormal levels of anxiety. Beyond this there has been little systematic study of the social or psychological reactions to radiation treatment and the proportion of people who experience specific problems.

Emotional distress is not limited to just the time of radiotherapy; it is recognized in several studies that it changes over the course of treatment. Physical symptoms may persist or worsen over several weeks and, therefore, the period of delivery of treatment may not represent the true time course of the impact of therapy. Holland *et al.* (1979), in a study of women with breast cancer having adjuvant radiotherapy, found that they had higher overall anxiety scores than women not having therapy. As women neared the end of their treatment, they became more depressed and were less hopeful about being cured. Forester *et al.* (1978) also found that patients reported restlessness, anxiety, apprehension, social isolation and feelings of withdrawal at the end of treatment. Ward *et al.* (1992), in a small study of women's reactions to completion of radiotherapy, acknowledge that the end of treatment does not always bring relief. Out of the 38 women interviewed, 11 (30%) found termination of treatment upsetting, and this was frequently connected to a worsening of side effects and not just the completion of the course of treatment. Women who were most anxious or depressed at the beginning of treatment were those most upset at treatment completion. This is also reflected in work by Graydon (1988) who suggests that emotional distress at the beginning of treatment is predictive of post-treatment functioning. Anderson and Tewfik (1985), in a sample of 45 women treated with external beam radiotherapy, found significant changes in anxiety between pre- and post-treatment assessments. As treatment progressed, patients with an initially high level of anxiety reported a significant reduction, those with moderate anxiety reported no change and those with low levels of anxiety reported significant increases. Several studies identify that fear at the outset of treatment is predictive of how well individuals adapt to radiotherapy. However, given the complexity of the radiotherapy treatment context, it is not surprising that a wide range of stresses can affect individuals at different times during the treatment trajectory (Lamszus & Verres, 1995).

Many of the studies discussed focus on specific populations and it is not clear how they can be generalized or whether disease specific determinants influence distress. These studies are focused within narrow parameters of distress and psychological morbidity, which may not reflect the everyday difficulties experienced with radiotherapy treatment (Fitch *et al.*, 2003). Munro *et al.*, who explored broader perceptions of distress in radiotherapy, found that men and women interviewed within the first 24 hours of starting radiotherapy had concerns that were different from their concerns at the end of treatment. Twenty people were asked to rank cards giving details of treatment related sequelae or concerns in order of severity of distress caused. It was found that concerns at the end of treatment were practical in nature, for example not being able to wash. Lower down the list were concerns that the treatment might not work. Distress was also caused by physical symptoms: fatigue ranked second both at the beginning and end of radiotherapy. However, Munro *et al.* (1989) only investigated distress

at two time points, the beginning and end of treatment, which meant any distress experienced in the period following treatment remained undiscovered. Assessments that focus specifically on psychological morbidity, such as depression or anxiety, may not capture these other issues and therefore may not be particularly helpful in clinical practice, or address aspects of service delivery that result in distress. With a broader perspective, identifying what patients themselves feel as distressing, different elements may be identified that influence the impact of treatment. In the absence of a large-scale study looking prospectively at psychological problems, distress, physical symptoms and quality of life in cancer, it is impossible to draw meaningful conclusions. The emotional impact of treatment is not simple to assess and few centres routinely screen patients undergoing radiotherapy (Faithfull, 2003).

Clinical implications

Information provision and reduction of anxiety

Studies exploring strategies for the provision of information in radiotherapy have mainly been conducted in North America. The literature highlights that individuals undergoing radiotherapy have little knowledge or insight into what to expect with regard to the potential side effects of radiotherapy. Research has shown that preparatory information prior to receiving radiotherapy helps improve coping and has been shown to significantly reduce emotional distress and improve functioning following treatment (Johnson *et al.*, 1989). Rainey (1985), in an evaluation of the provision of audiovisual educational material, found that the intervention used improved knowledge of treatment but that differences between the control and intervention groups diminished as treatment progressed. Those having the intervention had less emotional distress.

Porock (1995), in a prospective study, found that those who received structured information experienced less anxiety and had higher levels of satisfaction during and after treatment (see also 'Patient satisfaction'). Dodd and Ahmed (1987) looked at differences in preference for information and found people preferred a more cognitive style of information. Studies of different types of information have shown that regardless of the style of patient education, all forms help improve the knowledge of radiation treatment for those having therapy (Israel and Mood, 1988; Johnson *et al.*, 1989). The assumption is that by making people better informed they will feel less anxious and be able to cope more effectively throughout treatment. Although this has been demonstrated in surgical and coronary care (Mumford *et al.*, 1982), the exact mechanism and time scales may be different for radiotherapy.

There is a problem in these studies in that evaluations of the effectiveness of information provision are often based on knowledge recall. Understanding or being able to recount facts about radiotherapy is not equivalent to the benefits that such information may have in terms of outcomes. Information and patient education had greater impact at the start of radiotherapy than when therapy was completed (Rainey, 1985). This may be because those who felt less prepared for treatment were able, as treatment progressed, to improve their knowledge. It has been suggested that information improves self-care ability and the use of strategies by patients themselves (Dodd, 1984, 1988). Self-care strategies have not been shown to have significant benefits in terms of symptom control or reducing emotional distress (Johnson *et al.*, 1988, 1989). One possible reason for this is that effective self-care strategies may depend on the socioeconomic status and social support mechanisms from family and friends, which may vary widely between different people (Hanucharunkul, 1989). Evidence is now available in the literature that suggests that not only do different cancer groups require different levels of information, but, also, the type and timing of information are also important (Campbell-Forsyth, 1990;

Frith, 1991). Few studies have identified how informational interventions have an impact on psychological distress (see, for example, 'Stressful medical procedures' and 'Surgery'). However a study by Steigelis *et al.* (2004) identified that radiotherapy information provision has a correlation between individuals feelings of control and the level of illness uncertainty and that this is especially important for high-risk patients who perceive little control and more uncertainty (see 'Perceived control'). Therefore, targeted information giving has been shown to be most effective where it is given in combination with emotional support and pre treatment visit to the radiotherapy department.

Counselling and psychotherapy interventions

Studies have identified that radiotherapy treatment results in high levels of anxiety and emotional distress (Peck & Boland, 1977; Forester *et al.*, 1978) and, therefore, researchers have tried to reduce these sequelae by offering psychotherapy or counselling services. Forester *et al.* (1985), in a randomized trial, used a psychotherapeutic approach to try to reduce distress. The intervention was not a specific type of psychotherapy but reflected the individuals' emotional needs (see 'Counselling'). Thirty minutes of psychotherapy were given weekly over 10 weeks to provide emotional support. A significant reduction was found in both emotional and physical signs of distress in the intervention group, compared with those having conventional medical follow-up. Criticisms of this study were the feasibility of offering such intensive counselling to all those undergoing radiotherapy and the potential cost. In response, a further study using group psychotherapy showed that this decrease in emotional distress was also achieved using a group approach (Forester *et al.*, 1993) (see 'Group therapy'). Interestingly, subjects who had the lowest baseline distress scores seemed unaware of their cancer diagnosis and were found by the end of therapy to have higher distress levels. The overall conclusion was that psychotherapy was able to enhance the quality of life for those undergoing radiotherapy treatments. The degree to which individuals acknowledge their cancer was considered an important factor in their initial distress level and subsequent response to radiotherapy.

More recently there has been an increasing awareness of the psychosocial needs of those undergoing cancer treatments and this has been reflected in the provision of counselling services for radiotherapy. However, there are few constructive reviews of their effectiveness. Young and Maher (1992), in an audit of the work of a radiographer counsellor, provide insight into the dilemmas of providing such a service. Young and Maher felt that counselling had been of benefit in 50% of those who had received it. They believed counselling had reduced emotional distress, but pointed out that this was a subjective assessment at one time point that had not been evaluated in a randomized trial. They reported that the work was stressful and that the counsellor was deluged with referrals, but that overall such a service did have benefits.

Conclusion

Radiotherapy as a cancer therapy has clearly a level of psychosocial morbidity. Routinely screening for morbidity may be problematic in terms of referral ability and capacity in busy radiotherapy departments. However it is imperative to identify those undergoing radiotherapy in need of intervention and concentrate limited resources on those who would most benefit. The research evidence identifies that existing radiotherapy assessment tools that assess morbidity may not reflect emotional concerns. There are indications that the broader spectrum of radiotherapies impact is being overlooked, and that concerns about adapting to the effects of treatment, worry about every day concerns such as travel and the bother factor of physical symptoms are underrepresented. With a broader perspective, identifying what patients themselves feel as distressing, different elements may be identified that

influence the impact of radiotherapy. People often have misunderstandings as to the effects or why they are having radiotherapy, and improved informed consent and information provision has made progress in reducing some of this anxiety prior to radiotherapy. What should be remembered is that psychosocial distress changes over the course of radiotherapy and, although information is often targeted at the start of therapy, anxiety can be just as high at the completion of treatment. The provision of combination interventions such as counselling and information are beneficial to patient outcomes and have been shown to reduce anxiety. With new radiotherapy treatments emerging and more combination therapies the impact of radiotherapy is harder to entangle for the whole effect of cancer therapy. Defining what causes distress and how it changes over time are important issues for clinical practice, with implications for decisions about when care or support is required and who should receive it.

(See also 'Cancer', 'Stressful medical procedures' and 'Chemotherapy').

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