Introduction

Box 1: Diagnosis of breast cancer

Anne is 46 years old. She is the mother of two daughters, Liza (18) and Susan (20), and the wife of Peter (50). Anne was working as a kindergarten teacher when she was diagnosed with a Stage II of breast cancer. Her story:

“It all began when I discovered a hard lump about the size of a small bean, just above my right breast, and I worried about it for almost two months before I realized it wasn’t going away and I should consult a doctor. I was very apprehensive. I knew this lump might mean something was terribly wrong. And, indeed, when a biopsy was taken of my breast, the results showed that it was a malignant tumor. The surgeon who removed it told me he recommended a radical mastectomy and additional radiotherapy. At that moment, I was shocked and numb. I left the doctor’s office with very little information about the disease and no idea what I was going to do about it. I felt like I had just been given a death sentence. It’s hard to imagine what it feels like to be told you have a malignant tumor growing inside you, until it happens to you. I imagined the worst. I thought, “What should I tell my children?” and “What will happen to them when I will die?” These questions kept me awake for days. I was terrified. The first weeks I had trouble thinking of anything else. I was not ready to die yet. I was afraid of what was coming. Afraid of losing my hair, my energy, my life. I was unable to work, and I felt isolated from the world.”

“At that moment, I was shocked and numb. I left the doctor’s office with very little information about the disease and no idea what I was going to do about it. I felt like I had just been given a death sentence.” These are the words of a patient diagnosed with breast cancer. In fact, as can be read in Box 1, these words present the individual story of An, a woman who taught at kindergarten, and who had a husband and two grown-up daughters at the time she learned that she had a malignant tumor.
About 65,000 people are newly diagnosed with cancer each year in the Netherlands, which makes cancer an important medical and public health problem (Netherlands Cancer Registry). Forty percent of these patients is aged between 60 and 75 years, and 30 percent is 75 years or older. These figures indicate that cancer occurs particularly among older people. Nevertheless, cancer strikes people of all social, ethnic, religious, and cultural strata.

Numerous research has reflected the psychological consequences of cancer and the way patients adapt to this chronic disease. However, many questions remain unanswered. For instance, there is evidence that patients experience psychological distress at different points during the course of cancer and cancer treatment, but what about differences in the presence and intensity of these psychological problems? That is, do depressive symptoms occur at the same time as feelings of anxiety arise and does the intensity of psychological distress vary during cancer treatment or does it remain stable over time? And, which factors predict psychological well-being or psychological distress? In other words, some patients are found to adapt better than other patients, but what makes these patients feel that they are doing well? Do cognitive factors such as perceptions of control and optimism play an important role in this process? At the moment, there is an increase in the number of studies focusing on the positive consequences of cancer, but who are these patients who report positive consequences of cancer? Finally, intervention studies have intensively focused on providing information in the period shortly after diagnosis, but wouldn’t it be also useful to provide patients with information after the period of doctors’ appointments, physical examinations, and cancer treatment?

In the present thesis we address all these questions by examining (large) groups of cancer patients during the course of treatment with external radiotherapy. By exploring (1) patients’ psychological functioning and (2) the influence of cognitive factors on this functioning, but also by (3) incorporating positive consequences of the cancer experience, and, finally, by (4) conducting an intervention study in which the effects of a specifically designed information booklet were evaluated, we hope to add some new and interesting findings to the field of psychosocial oncology.

It can be argued that some patients adapt better to cancer than other patients. To show some individual differences, the present thesis includes the personal accounts of patients who were diagnosed with breast cancer (Anne) and prostate cancer (Henry). The stories are referred to throughout the thesis and are presented in boxes in the different chapters. In these stories, Anne and Henry talk about their emotions surrounding diagnosis and treatment and also about their ways of coping with cancer and treatment. I hope that by viewing the personal experiences of two patients diagnosed with different tumors, some insight can be gained into how individual patients may adapt to cancer. As can be read in Box 1 (see Chapter 1), Anne was devastated for weeks after hearing she had cancer, but Henry (see Box 2 Chapter 1) experienced the diagnosis of cancer quite differently. By presenting these personal
stories of patients who are coping with cancer, we can obtain much useful information on how individuals experience this disease. However, what we want to know is whether there is some kind of systematic in these individual stories, in order to understand more about larger groups of patients. In other words, do similar patterns emerge in the process of adaptation among different individual patients? When such patterns are observed, they can be used as a tool for research and they could lead to effective psychosocial interventions.

The fact that cancer is such an individual process makes it hard to investigate the process of adaptation among large groups of patients. Not only may patients differ in how they adapt to cancer and cancer treatment but, also, cancer treatment is tuned to the individual patient. For instance, when studying psychological well-being at two months after diagnosis, some patients may just have had surgery, other patients may be initiating chemo- or radiotherapy, whereas another group may have been receiving chemo- or radiotherapy for several weeks already. Since the different treatments are in themselves significant stressors, the time of assessment during the course of cancer may influence the outcome measure (i.e., psychological well-being). The present thesis focused on patients receiving external radiotherapy,¹ which is a structured treatment delivered in a series of treatments over a period of two to eight weeks on a daily basis (see Box 3 Chapter 1). Examining patients at fixed assessment points prior to, during, and after the course of radiotherapy gave us the opportunity to examine the process of adaptation in the first year of cancer in a structured manner. Thus, in the present thesis, all patients received radiotherapy and it was also for these patients that an intervention was developed in which they received information that was strongly related to radiotherapy. In addition, taking radiotherapy as a lead for meaningful assessment points, the effects of the intervention could be assessed for all patients at exactly the same time, which was three months after completion of radiotherapy. Finally, given the fact that a half of all individuals with cancer receive radiotherapy at some point, we believe that focusing on patients who are undergoing radiotherapy is a valuable thing to do.

This introductory chapter starts with an enumeration of the main research aims. Next, I will provide a thorough explanation of why this thesis has been written, both from a theoretical and a common sense point of view. I will present a complete overview of the thesis, in which the different chapters will be discussed in detail, including hypotheses and research questions.

¹ Patients may receive external or internal radiotherapy, or both. In the present thesis, the focus is on patients who receive external radiotherapy. A description of external radiotherapy is provided in Box 3. When a patient is treated with internal radiotherapy, he or she may be hospitalized in a private room for a few days.
With respect to the questions that are described in the short Introduction, we formulate four main research aims. These aims represent the broader perspective of the present thesis. In the discussion, these aims will be taken as a lead to discuss the results of the different studies.

1. To examine the psychological functioning of cancer patients prior to, during, and after their treatment with radiotherapy (Chapter 2).
2. To examine cognitive factors (i.e., optimism, control, and self-esteem) and their relationship with psychological distress among cancer patients treated with radiotherapy and a reference group of healthy people (Chapter 3).
3. To examine the relationship between illness severity, psychological factors, and cognitive factors, on the one hand, and future positive consequences, on the other hand, among patients treated with radiotherapy (Chapters 4 and 5)
4. To examine the effects of an informational intervention on psychological distress, which was provided after the patients completed treatment with radiotherapy (Chapter 6)

Box 2: Diagnosis of prostate cancer

Henry is 64 years old, the husband of Marie (59), the father of three children, and the grandfather of 4 great-grandchildren. He had worked as a farmer for almost 40 years, before, several years ago, he sold his farm to his oldest son. Henry was enjoying his retirement when cancer struck him.

I was 63 when I had a routine bladder inspection. During the examination, the doctor noticed that my prostate gland was enlarged. It was also found out that I had a large PSA count. So I underwent a biopsy and this biopsy confirmed that I had cancer. Although I sometimes did have the feeling that something was wrong with my body, it was still a big shock when I heard that I was diagnosed with prostate cancer. It felt like having a bucket of icy water poured over me. But, I must say that I was not really thinking about myself at that moment. And I don’t remember asking “Why me?” on that day of diagnosis. Maybe once, I did, but that quickly changed to “Why NOT me?” My greatest fear concerned my wife. Leaving her because there was a possibility I could die, that would be the hardest thing to do. I lived my life well and I had been able to see grandchildren and I’m really grateful for that, but leaving my wife, I could not think about that. Looking at it that way, the diagnosis of cancer was totally unexpected, but isn’t it always? Nevertheless, I knew what I had to do. If I wanted to get better, I had to follow the doctor’s orders. That was as clear as daylight, and I did want to get better. Knowing that my wife was there to support me made me feel strong even at that point, when my future was very insecure.
Box 3: Radiotherapy

Over the years there has been an improvement in survival rates among cancer patients. This improvement has been achieved by surgery, radiotherapy, and multi-agent chemotherapy or a combination of these treatments. As an increasing number of cancer patients can now be cured with these treatments, there is also an increasing number of survivors who have to live with the possible physical and/or psychosocial consequences of cancer and cancer treatment.

Radiotherapy is one of the most effective means by which local/ regional control of cancer is obtained. Cancer patients may receive radiotherapy as their primary treatment but it can also be given as adjuvant treatment alone after surgery or along with chemotherapy. About 45% of patients with malignancy require radiotherapy. Approximately 50% of these patients is treated with the intention to cure, whereas the other 50% is treated palliatively.

The intention of curative radiotherapy is to target the cancer cells to arrange local control. The treatment field of radiotherapy typically includes the tumor site and if indicated the lymph nodes that drain the area. Unfortunately, there are also normal cells which are very close to the cancer cells. Because it is not possible to exclude normal cells from the treatment field, radiation also affects normal tissue, which can cause a number of side effects. Common side effects can include fatigue, skin irritation at the site of the radiation beams, nausea, diarrhea, and gastrointestinal symptoms. These side effects may persist till several weeks after treatment and then will disappear for most patients (Caffo et al., 1996; Fransson & Widmark, 1999; Graydon, 1994; King et al., 1985; Nail et al., 1986; Walker et al., 1996).

Radiotherapy is usually delivered in a series of treatments over a period of two to eight weeks on a daily basis (Monday- through- Friday schedule). During the treatment, patients are placed on the treatment couch of the linear accelerator and are not able to see, hear, smell, or feel what is happening. Outlines have been drawn on their skin to indicate the exact place on the body where the beams are entering the body (simulation). During treatment with radiotherapy, a radiation technologist gives orders by using a microphone behind a glass door. It is very important that the patient is well informed about what to expect during the treatment period, but it is also important to explain the aim of radiotherapy (Dreifuss-Katan, 1990).

Why this thesis?

Because cancer is often both life-threatening and associated with aggressive treatment, it has a significant impact upon the lives of those afflicted. Social stigma has been attached to the disease, and many of the side effects or direct products of treatment produce social strains and may require alteration of family, neighborhood,
and community roles. Besides physical problems, patients may experience psychosocial problems. In light of these stressors, the literature documents numerous negative psychological consequences for patients including depressive symptoms, feelings of anxiety, and general feelings of distress (Epping-Jordan et al., 1999; Faulkner et al., 1994; Klee et al., 2000; Kugaya et al., 2000; McDaniel et al., 1995; Van’t Spijker et al., 1997). Focusing on cancer treatment, Peck & Boland were, in 1977, among the first authors to examine psychological functioning among patients treated with radiotherapy and they revealed high levels of psychological distress both before and after patients had completed treatment. Since then, many studies assessed psychological functioning among patients who were at different phases (i.e., prior to, during, and/or after) of radiotherapy, and research into this topic is still being done. Of vital importance, studies have revealed inconsistent findings regarding psychological functioning at these different phases of radiotherapy. In fact, at a glance, it is hard to tell whether patients experience higher levels of psychological distress prior to initiating radiotherapy or after completing this treatment. In addition, it remains unknown whether the course of radiotherapy is burdened by feelings of anxiety, depressive symptoms, or maybe both. While it is plausible that the presence or intensity of psychological problems (e.g., feelings of anxiety, depressive symptoms, general distress) differs according to the phase of radiotherapy, there is no overview that provides a thorough examination of studies on the psychological functioning of cancer patients prior to, during, and after treatment with radiotherapy. Therefore, our first aim is to write a review of this topic. Both from a scientific and a clinical point of view, it would be very interesting to map these findings. Scientists would get a clear picture of what research has been done and what has to be done next. Clinicians could intervene by offering patients psychological help when they need it the most.

In Chapter 2, an overview of research into psychological functioning is presented. According to their assessment points, the studies are divided into different sections, namely psychological functioning (1) prior to, (2) during, and (3) after completing radiotherapy. A second aim of this review study is to examine differences in psychological functioning among patients treated with radiotherapy compared to other treatment modalities. By making these comparisons, an indication of the impact of radiotherapy on psychological functioning may be provided. Other medical factors such as, for instance, stage of disease and cancer site are also examined.

Although negative psychological responses occur in many patients during the course of disease, earlier research has repeatedly shown that major affective disturbance is rare among cancer patients (Andrykowski et al., 1996; Carpenter, 1997; Cella & Tross, 1986; Dougherty et al., Lepore & Helgeson, 1998; Litwin et al., 1995; Vinokur et al., 1989). In addition, studies that compared cancer patients with a reference group of healthy people drawn from the general population have
often found no or only small differences between these groups in most of the indicators of quality of life, such as overall quality of life, mental functioning, fear, depressive symptoms, well-being, and daily activities (Breetvelt & Van Dam, 1991). These findings drew my attention. The question that arose was “How can patients, despite having a life-threatening disease, be able to report a level of psychological functioning that is similar to that of healthy references. I came across several theoretical explanations that all indicated the importance of cognitive factors. Helson’s adaptation level theory, Response Shift phenomena, Bradburn’s theory of internal alteration of norms, and Taylor’s theory of cognitive adaptation suggest that people may use a number of cognitive strategies to counteract the negative impact of distress on well-being (Bradburn, 1969; Breetvelt & Van Dam, 1991; Hagedoorn et al., 2002; Nelson, 1964; Sprang & Foundation for Educational Research, 1988; Taylor, 1983). In addition, a great number of studies revealed significant relationships between different cognitive factors such as optimism, control, and social comparison strategies, on the one hand, and psychological well-being, on the other hand, although causality of these cognitive factors on psychological well-being is often only implied. Based on these studies and the aforementioned theories, I came to believe that incorporating cognitive factors in research would be a valuable thing to do. They could help in explaining why cancer patients report a level of psychological well-being that is comparable to that of individuals who are not confronted with serious health threats.

Thus, in Chapter 3 of the thesis, we explore the role of cognitive factors and their causal influence on psychological distress (i.e., depressive symptoms and feelings of anxiety) by using Taylor’s theory of cognitive adaptation as a theoretical framework. Taylor’s theory of cognitive adaptation proposes that adjustment depends on the ability to sustain and modify illusions (i.e., unrealistic optimism, exaggerated perceptions of control, and enhanced self-esteem) that buffer against threats but also against possible future setbacks. Besides the fact that this theory can provide insight into whether and how patients successfully adapt to cancer and cancer treatment, there are two other important reasons for incorporating this theory in the present study. First, in many studies on cancer patients research findings have been explained by using this theory, whereas, interestingly, the theory has never been empirically tested among cancer patients (e.g., Andrykowski et al., 1993; Fromm et al., & Hunt, 1996; Hagopian, 1993; Petrie et al., 1999; Vickberg et al., 2000). Second, it refers to three interesting cognitive factors (i.e., optimism, control, and self-esteem) that, when proved to be adaptive cognitions, may be influenced by different interventions. Thus, using the theory of cognitive adaptation, the following research questions were examined: (1) Are patients at least as optimistic and do they perceive themselves as having at least as much control and self-esteem as those in the reference group?; (2) Are patients, as compared to healthy individuals, able to maintain similar or even higher levels of optimism, control, and self-esteem during
radiotherapy as well as three months after radiotherapy?; and (3) Do lower levels of optimism, control, and self-esteem predict future depressive symptoms and feelings of anxiety?

It has been found that a number of cancer patients report an overall psychological well-being that is similar to that of healthy references. This may have contributed to the fact that, in recent years, the focus has shifted from investigating only the negative associations of cancer to examining also positive outcomes, such as increased perceptions of optimism, increased self-knowledge, improved coping skills, and positive affect (Curbow et al., 1993; Ferrell et al., 1997; Folkman & Greer, 2000a). While a number of studies found that positive psychosocial results were part of the cancer experience, the existing literature has been largely descriptive in nature. Little information is available about potential correlates or the processes underlying the development and expression of positive outcomes. In other words, it is largely unknown which patients report positive outcomes as a consequence of the cancer experience. Because we assume that the presence of positive outcomes may vary as a function of the type of crisis, and because the literature on this topic has focused mainly on other traumas such as, for instance, rape and sexual abuse, and losing an intimate person (Draucker, 1992; Edmonds et al., 1992; Lehman et al., 1993), I became interested in exploring positive outcomes among cancer patients treated with radiotherapy. The focus was on the construct of positive consequences and its possible correlates. Positive consequences reflect positive changes due to the cancer experience as perceived by the patient, such as positive changes in feelings, cognitions, behavior, coping strategies, and social relationships. In studies that focused on this construct, the emphasis was mainly on exploring the different domains in which patients reported positive consequences of the cancer experience (e.g., improved interpersonal relationships, re-evaluation of prior goals, altered priorities in life, personal growth, and discovery of skills and new pursuits).

To extend research on the topic of the positive consequences of the cancer experience, both Chapter 4 and Chapter 5 are focused on this issue. In Chapter 4, we examine the role of threat in relation to positive consequences. The idea of involving threat in research into positive consequences is based on the assumption that threatening life events such as cancer may stimulate a search for meaning which, in turn, may lead to positive consequences. For instance, in a qualitative study, Taylor (1983) found that over half of a group of 78 breast cancer patients reported that the cancer experience had caused them to reappraise their lives. For many patients, the meaning derived from the cancer experience brought about a new attitude toward life and, for others, the meaning gained from the experience included positive self-change. Building on the idea that threat may, indirectly, lead to positive consequences, one could carry the idea further and say that the degree of threat may be important for reporting positive consequences of the cancer experience.
Indeed, one study found that positive consequences were more commonly reported by patients who had overcome greater adversity (i.e., greater threat) by surviving a bone-marrow transplantation (BMT) with a higher degree of risk than by patients who had survived a BMT with a lower degree of risk (Fromm et al., 1996). In this study, threat was defined as the degree of risk that BMT brought along with it, with a greater risk indicating a higher threat. In addition, one could reason that the focus was on objective threat because patients may vary in the extent to which they appraise the cancer event as threatening. The diagnosis of cancer, and being exposed to a higher risk treatment can be considered as objective threats, because they are appraised by some patients as a harm, by others as a threat, and by others still as a challenge (Folkman & Greer, 2000a). This means that, at best, a moderate relationship between the objective threat and the perceived threat can be expected.

Patients’ psychological distress in the acute phase of the illness could be seen as a proxy for perceived threat, because patients high in distress appraise their current situation as stressful.

To conclude, because the literature on a possible relationship between (degree of) threat and future positive consequences is mainly built on assumptions, and studies on this issue are very rare and only incorporate the role of objective threat, we considered it worthwhile to investigate the degree of both objective and perceived threat of the cancer event. Thus, in the study described in Chapter 4 we explored whether (1) objective threat, in terms of number of treatments (which in our sample of breast cancer patients is closely related to stage of disease), and (2) perceived threat, as measured by psychological distress, are related to future positive consequences. The number of treatments was indicated as low when patients received surgery and radiotherapy, but as high when, besides surgery and radiotherapy, patients also received hormonal and/or chemotherapy. By including both objective and perceived threat, we were able to examine whether illness severity (i.e., number of treatments) as well as psychological variables (i.e., psychological distress) are important for positive consequences to emerge.

The question of whether cognitive factors such as an information-seeking style (i.e., monitoring) or an information-avoiding style (i.e., blunting) are important in predicting future psychological well-being or psychological distress is one thing, but are they also important for positive consequences to emerge? It can easily be assumed that patients who report a high level of psychological well-being or a low level of psychological distress will automatically show high levels of positive consequences. In other words, when cognitive factors turn out to be important for psychological well-being or psychological distress, this result will also count for positive consequences. However, the few studies that focused on the relationship between psychological well-being or distress, on the one hand, and positive consequences, on the other hand, revealed inconsistent findings, indicating that this relationship is not well established. Thus, before exploring the predictor and
mediator roles of cognitive factors in relationship to positive consequences, which was the main research aim of the study described in Chapter 5, we examined the association between psychological distress and positive consequences. Because the direction or strength of the latter relationship is still unknown, both positive consequences and psychological distress were used as outcome measures.

The individual cognitive factors that were used as predictor variables in Chapter 5 have been found to be rather stable over time and have been examined as important variables in research into chronic illness and other medical situations, which makes them worth investigating. These cognitive factors contain monitoring/blunting and social comparison orientation (i.e., the degree to which an individual compares him- or herself to others) and they were measured prior to initiating treatment with radiotherapy (T1). The role of mediator variables was explored and they were measured two weeks after the treatment with radiotherapy (T2). We included four mediator variables, namely, need for information about coping skills, need for information about other patients, frequency of upward social comparison, and frequency of downward social comparison. In separate analyses, we examined whether patients low in blunting but high in monitoring and SCO showed a higher need for specific cancer-related information and a high frequency of social comparison strategies, and whether these need and comparison strategies were related to lower levels of future psychological distress and higher levels of positive consequences. By exploring the role of monitoring/blunting and social comparison orientation in relation to positive consequences in one study, rather than focusing solely on one variable at a time, we believe that a significant contribution can be made to the explanation of which factors can trigger the presence of positive consequences.

The aims of the different chapters mentioned so far have been to provide insight into (1) the psychological functioning of cancer patients prior to, during, and after treatment with radiotherapy; (2) the role of cognitive factors and their relationship with psychological distress; and (3) the possible correlates of positive consequences (and psychological distress). We would now like to turn our attention from observing different cognitive and psychological variables and their underlying relationships to intervening in these variables. By examining the aforementioned hypotheses and research questions, we tried to map part of the adaptation process of cancer patients who receive radiotherapy treatment. Following this, we provided patients with an intervention that incorporated several of the cognitive and psychological variables that were investigated in the studies described in the aforementioned chapters. Before presenting a description of this intervention study, which is based on both theoretical and common sense assumptions, we will first explain the importance of providing this intervention after radiotherapy.

The majority of cancer patients is able to adapt well in response to cancer, as measured by their levels of psychological distress, cognitive factors, or positive
consequences, however, not all patients are able to do so. Previous research found, for instance, that about 25% of patients with cancer show high levels of depressive symptoms. In trying to reduce their levels of psychological distress and feelings of uncertainty, patients may have specific questions that need to be answered. For patients undergoing radiotherapy these questions may be “How long does the treatment last?”; “What side effects can I expect?”; and “Will it cure me?” It is important that patients are told about the possible side effects of radiotherapy and what can be done to control these effects before they occur. This period of preparing the patients by providing different kinds of information should be continued after treatment, since initiation of treatment may lead to one set of problems and questions, and completion of treatment may lead to other kinds of issues. The loss of relationships with the staff and other patients, the uncertainty about the adequacy of radiotherapy in curing their disease, the continued awareness of the illness they have survived, and the possibility of recurrence may exacerbate patients’ distress and induce a constant level of worry (Arnold, 1999; Dow et al., 1996; Klee et al., 2000; Holzner et al., 2001; Speca et al., 1994). Other problems that may arise after treatment may be of a social nature, such as attempting to re-enter society, which involves patients resuming roles and functions that may have been disrupted (Mullan, 1984; Smith & Lesko, 1988). Sometimes, resuming their previous jobs is impossible, because of the physical factors associated with the disease, and the burden of financial concerns can be a reality (Greenwald et al., 1989). These findings indicate that, even though treatment has been successful and the disease is in remission, the process of adaptation continues beyond the completion of medical treatment.

Awareness has grown that, with targeting and implementing interventions to decrease psychological distress, patients will adjust better psychologically (Bremer et al., 1997; Fallowfield et al., 1986). However, studies on information provision have primarily, if not only, been focused on the period shortly after diagnosis, before cancer treatment begins. In addition, interventions that have been evaluated often lack a theoretical basis for their design. To fill these gaps, the final aim of the present thesis was to investigate the effects of an information booklet on psychological distress in a randomized intervention study. In this study, the booklet was provided after patients had completed treatment with radiotherapy.

The results of this study are presented in Chapter 6. From a theoretical point of view, it was examined whether patients who were at a higher risk of psychological distress derived greater benefits from our intervention. Substantial empirical evidence has revealed that patients who are low in perceptions of control or high in illness uncertainty are psychologically more distressed (Ell et al., 1989; Mishel et al., 1984; Taylor et al., 1991; Thompson & Collins, 1995; Wong & Bramwell, 1992). By trying to influence this relationship with an information booklet, assuming that information can provide patients with a way to cope with the disease
and improve their knowledge, psychological distress may be reduced. It was, therefore, hypothesized that the relationship between low levels of control or high levels of uncertainty and psychological distress would be reduced in the patient group that received an information booklet, whereas this relationship would still be significant in the patient group that did not receive a booklet. To fulfill our aims, a whole new management package in the form of an information booklet was developed and examined in a randomized design. To conclude, the present study must not be seen as just an intervention study in which general information was provided since it (1) had a theoretical basis; (2) referred to cognitive factors (i.e., control and uncertainty); (3) is the first study to have provided an information booklet after treatment with radiotherapy, (4) provided not only information about how one can cope with all kinds of problems, but also included social comparison information (i.e., accounts of other patients in which they tell about their personal experiences and how they coped with problems), relaxation exercises, and addresses of organizations to which patients can go if they need help.

It can be argued that writing a final discussion is superfluous since the important points of debate are already discussed in the various chapters. However, we believe that it is important to integrate the findings of the present thesis into a broader framework. This may lead to a better understanding of the contribution of the present thesis to psychosocial research into adaptation to cancer. Chapter 7 is devoted to this issue. First, the most important findings of the different chapters are summarized and discussed. Next, methodological issues and limitations are presented briefly. The chapter ends with suggestions for future research and discussion of a practical implication of the findings.