Social comparison and coping with radiation therapy

Bennenbroek, F.T.C.

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2003

Citation for published version (APA):

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Download date: 25-06-2020
Chapter 1
Introduction

After cardiovascular diseases, cancer is the second leading cause of death in the Netherlands; every year, more than 37,000 people die of cancer and almost 63,000 people are newly diagnosed with some form of cancer (Dutch Cancer Society, 1999). About 40% of all cancer patients are treated with radiation therapy, usually in addition to either surgery or chemotherapy (MacLeod & Jackson, 1999). As with most cancer treatments, radiation therapy is a relatively time consuming procedure, with treatment periods varying from several days to two months, in addition to the usual waiting periods. Furthermore, treatment with radiation therapy is associated with physical side effects, including short-term effects like skin alterations, fatigue, nausea, and a sore throat, but also long-term effects like secondary tumors, cognitive impairment, and sterility (Perez & Brady, 1998). In addition, radiation therapy is associated with severe psychological consequences, such as uncertainty, anxiety, depression, psychological distress, feelings of uselessness, shame, and guilt as well as changes in body perception and self-esteem (Andersen & Tewfik, 1985; Chandra, et al., 1998; Munro & Potter, 1996). Of these psychological consequences, uncertainty has been identified as one of the main problems (Van den Borne & Pruyn, 1985). People who are ill often have difficulty obtaining information about the course of their illness and its treatment (Tennen, McKee & Affleck, 2000). Among cancer patients undergoing radiation treatments, the need for information is reportedly high (Harrison, Galloway, Graydon, Palmer-Wickman & Rich-Van der Bij, 1999). Patients typically display a high need for information regarding the disease itself, the prognosis, the tests, the treatment, and the side-effects (Bilodeau & Degner, 1996; Gamble, 1998). In addition, they also report a need for information on how to physically take care of themselves and how to deal with their feelings and concerns (e.g., Galloway, et al., 1997; Graydon, et al., 1997).

The present thesis focuses on how social comparison information (i.e., information about how fellow patients are doing, feeling and coping) can be used by cancer patients to adapt to and cope with cancer and the treatment with radiation therapy. This introductory chapter starts with an overview of the literature on social comparison among cancer patients, reviewing several relevant themes: preferences for social comparison information, reactions to social comparison information, and the role of several relevant factors, particularly several different personality characteristics. The chapter concludes with a summary of the focus of each of the subsequent chapters.
Social comparison
Social comparison is defined as the process of thinking about one or more people in relation to the self (Wood, 1996). It not only involves acquiring social comparison information (i.e., information about how similar others are doing), but also thinking about and reacting to the social comparison information (Wood, 1996). The core feature of social comparison, however, is specified as ‘...looking for or identifying a similarity or a difference between the other and the self on some dimension’ (Wood, 1996, p. 521). This process may involve familiar others, like friends or relatives, but may also involve complete strangers. It may even involve others who do not actually exist, but are cognitively constructed. Taylor, Wood, and Lichtman (1983), for example, found that husbands of women with breast cancer often referred to examples of husbands who had left their wives after surgery. As very few men actually leave their wives after a cancer diagnosis, comparisons with these ‘mythical men’ seem to be based on cognitively constructed comparison others.

People may engage in social comparison for several reasons. Generally, three motives for social comparison are acknowledged. The first motive, self-evaluation, is directly linked to the formulation of the original social comparison theory. Festinger (1950, 1954) hypothesized that people have a drive to accurately evaluate their opinions and abilities. When no objective (i.e., non-social) information is available, people will try to evaluate their opinions and abilities by comparing themselves with similar others. The second motive, self-enhancement, refers to the desire to feel good about oneself and one’s situation. According to Wills’ (1981) downward comparison theory, people compare themselves with others who are worse off (downward comparison) in order to maintain or increase their self-esteem. In other words, by comparing themselves with others doing worse, people may be reminded that their situation could have been worse, and, therefore, may feel better about themselves and their situation. The third motive, self-improvement, refers to the desire to improve oneself or one’s situation. Comparing oneself with others who are doing better (upward comparison) may provide opportunities to learn and to improve one’s situation. Fellow patients can thus function as role models, whose behavior can be copied and imitated.

Social comparison among cancer patients
Particularly when cancer patients experience a lack of objective information, it is assumed that their need for social comparison information is assumed to increase (Festinger, 1954). In fact, some studies indicate that, even when objective information is available, people remain interested in social comparison information (Miller, 1977; Willemsen & Van den Berg, 1986). Research has shown that people tend to compare themselves with others in a similar situation, particularly when they are confronted with a serious health threat (e.g., Buunk, Gibbons & Reis-
Bergan, 1997; Tennen, et al., 2000). This process of social comparison may help patients cope with a novel, stressful and threatening situation (c.f. Stapel & Tesser, 2002). Intervention studies based on social comparison theory have indicated that cancer patients are indeed extremely interested in social comparison information. Van der Zee, Oldersma, Buunk, and Bos (1998), for example, provided cancer patients by way of a computer program with the opportunity to read various parts of interviews with fellow patients. The majority of the patients found the information described in the interviews interesting, useful, and important. Indeed, cancer patients often report that the information they receive from fellow patients is unique, and that only fellow patients can understand what they are going through (Gray, Fitch, Davis & Phillips, 1997). In fact, Wood, Taylor, and Lichtman (1985) found that almost all the comparisons made by women with breast cancer were made in relation to fellow cancer patients and not to healthy family members or friends, indicating that fellow patients are a major source of (social comparison) information.

Cancer patients have numerous opportunities to compare themselves with fellow patients (Wood, et al., 1985). Even when patients do not seek out social comparison information, they are bound to be confronted with it for several reasons. First, cancer and cancer patients are profusely covered in the media. Television programs about patients’ experiences in hospital settings are increasingly popular. In addition, interviews with cancer patients frequently appear in magazine articles, newspapers, and on the radio. Second, friends and relatives often tell cancer patients about other patients in an effort to be helpful (Taylor, Aspinwall, Giuliano, Dakof, & Reardon, 1993). Third, cancer patients are inevitably confronted with fellow patients in the hospital setting. Most patients have to wait in a waiting room together with other patients, providing them with ample opportunity for comparison. When patients do decide to seek out social comparison information, the possibilities are also abundant. They can search for information in the media. The Internet provides a new medium for social comparison information (Davison, Pennebaker & Dickerson, 2000). Patients can find personal accounts of fellow patients on the Internet, but they can also join a chatroom to get in touch with other patients. In addition, patients can approach fellow patients in the waiting room of the hospital. Finally, patients can join support groups or patient education programs, which provide ample opportunity for social comparison, as patients discuss their illnesses, but also their thoughts and feelings with fellow patients (Polusamy, Hyman & Baum, 1998).

What kind of social comparison information do people faced with a health threat such as cancer prefer? Do they want to compare themselves with others who are worse off (downward comparison) or with others who are better off (upward comparison)? Research findings on this issue seem to contradict each other. For example, several studies suggest that people who are confronted with a serious
illness mainly compare themselves with others who are doing worse (Affleck & Tennen, 1991; Van der Zee, et al., 1996). Wood et al. (1985) found that women with breast cancer compared themselves predominantly with fellow patients who were worse off. Similarly, in a self-report diary study, Bogart and Helgeson (2000) found that women with breast cancer compared themselves mainly with fellow patients who were worse off. However, people may also be motivated to avoid downward social comparison. Brickman and Bulman (1977) argued that, by comparing with others worse off, one may be confronted with the inferiority of the others, which may lead to fear of deteriorating. This seems to be particularly the case when actual contact with the comparison other is involved (Taylor & Lobel, 1989). Indeed, several studies have found that cancer patients actively avoid contact with others who are worse off (e.g., Molleman, Pruyn & Van Knippenberg, 1986). In addition, Dunkel-Schetter and Wortman (1982) found that cancer patients did not like to interact with fellow patients in the waiting room, because the sight of someone else’s deterioration was depressing to them.

With respect to upward comparison, similarly divergent findings exist. A study among cancer patients, for example, indicated that they selected and spent more time reading parts of interviews containing information about others who were better off than about others who were worse off (Van der Zee, Oldersma, et al., 1998). Stanton, Danoff-Burg, Cameron, Snider, and Kirk (1999) found that women with breast cancer displayed a greater desire for contact with well-adjusted fellow patients than with poorly adjusted fellow patients. However, other studies indicate that patients may avoid making upward social comparisons (Wood, 1989). Brickman and Bulman (1977) argued that people are especially reluctant to expose themselves to information that will be unfavorable to them. By comparing oneself with others better off, one may be confronted with one’s own inferiority, which in turn may lead to embarrassment. Similarly, Wood and Van der Zee (1997) suggested that comparing oneself with others who are better off is likely to be very threatening when one believes it is possible that one’s situation will worsen.

In Chapter 2, the kinds of social comparison information and social comparison contact cancer patients prefer are examined. In particular, it is examined whether cancer patients prefer to seek out upward or downward comparison, and which factors influence these preferences. First, it is assumed that the mode of comparison (seeking information or seeking contact) influences directional preferences. In particular, it is expected that patients prefer upward comparison when seeking comparison information and contact, but that this preference for upward comparison will be directed more upward when seeking information than when seeking actual contact. Second, it is assumed that the dimension on which the comparison takes place (coping or illness severity) influences the
preference for upward or downward comparison. It is expected that when patients are seeking social comparison information or contact, they prefer more upward comparison on the coping dimension than on the illness severity dimension. Third, it is assumed that a number of psychosocial factors, such as uncertainty, anxiety, depressive symptoms, and subjective evaluation of one's own health influence directional preferences. It is expected that the more people feel they have control, the more they will be interested in information about and contact with others doing better. In addition, the role of uncertainty, anxiety, depressive symptoms, and subjective evaluation of one's own health is examined.

Besides preferences for upward or downward social comparison, the reaction of people to social comparison information is of major interest. How do cancer patients react to different types of social comparison information? What kind of social comparison information has the most beneficial effects? Most research has been done into the differential effects of upward and downward comparisons. Although upward and downward comparisons may both have positive and negative consequences (Buunk, Collins, Taylor, Van Yperen & Dakof, 1990), among cancer patients it is generally found that upward comparison causes more positive affect than downward comparison. Van der Zee, Oldersma, et al. (1998), for example, found that reading interviews with fellow cancer patients doing better resulted in more positive and less negative affect. In contrast, downward comparison generally leads to an increase in relative well-being and self-esteem (Bogart & Helgeson, 2000; Van der Zee, et al., 1996). Relatively little attention has been given to the role of the dimension of comparison (e.g., illness severity or coping). Wood and Taylor (1991) have suggested that individuals who compare themselves with others have a specific goal, such as evaluating themselves and their situation (self-evaluation) or improving their situation and their skills (self-improvement). These specific goals may be served by choosing comparison others on a specific dimension. For different goals, different dimensions may be involved. In other words, the function of social comparison information may depend on the dimension of the information. For example, cancer patients may compare themselves with fellow patients who are coping better for purposes of self-improvement. According to Wood (1989), patients may use these upward comparisons to learn from fellow patients how to improve their own situation. Self-improvement is not likely to be the motive for comparing oneself with fellow patients on the illness severity dimension. There is little to learn from people who are better off physically to help improve one's own situation. From research among rheumatoid arthritis patients (De Vellis, et al., 1991), there is indeed some evidence that patients prefer downward social comparison information on the illness severity dimension, in order to feel better about their own physical condition.
In Chapter 3, the short-term effects of social comparison information on three different dimensions are examined. Cancer patients who were about to undergo radiation therapy were provided with audiotaped social comparison information (i.e., information about how other patients have experienced their disease and the radiation treatments). The purpose of these audiotapes was to prepare the patients for the upcoming treatment and to reduce negative emotions. To examine whether information on different dimensions would serve different goals, and would thus yield different effects, information on three potentially relevant comparison dimensions, namely procedures, emotions, and coping was provided. Although ‘procedures’ may not seem like a dimension of social comparison information at first sight, it can certainly be considered as one. Wood and Taylor (1991) have defined a comparison dimension as ‘the specific attribute that is the focal attribute under consideration’ (p. 25). The procedural audiotape provides information about the experiences of fellow cancer patients, for example, how the cancer was discovered, what happened during radiation therapy, and which side effects they experienced. As cancer patients with different forms of cancer are being treated with radiation therapy, treatment regimens may differ widely. For example, cancer patients with a tumor in the head or neck region will be fitted with a facemask to make sure the radiation is directed at the same area every time. Furthermore, the number of treatments, experienced side effects, and the procedures during the check-ups went after the treatments had ended may differ widely between patients. In addition, treatment procedures may differ between hospitals. Therefore, the procedural information is provided on a dimension on which cancer patients will be able to compare themselves with fellow patients.

On each of the three audiotapes, individuals who acted as cancer patients who had already undergone radiation therapy recounted different aspects of their experiences with cancer and radiation therapy. However, on each audiotape they focused on different aspects. On the first tape, the patients focused on their experiences with various aspects of radiation therapy: how the cancer was discovered, what happened during the treatments, which side effects they experienced, and how the check-ups went after the radiation therapy had ended (procedural tape). On the second tape, the patients focused on a variety of emotional reactions (both positive and negative) to these aspects of the treatment (emotion tape). On the third tape, the patients focused on how they had coped with various aspects of cancer and radiation therapy (coping tape).

Factors influencing the effects of social comparison
In addition to the main effects of social comparison information, the role of several factors in moderating the effects of these types of social comparison information is examined. In Chapter 4, the role of uncertainty (i.e., a lack of
knowledge about cancer and radiation therapy) in moderating the effects of social comparison information on mood is examined. It is generally acknowledged that feelings of uncertainty foster the need for social comparison information. It is, therefore, surprising that little attention has been given to the influence of uncertainty in moderating the effects of social comparison information. It would be interesting to examine whether individuals who experienced more uncertainty and would, therefore, be more interested in social comparison, would also benefit more from this information. One would certainly expect this to be the case. However, previous research has indicated that individuals who are dispositionally interested in social comparison information, not always benefit most from social comparison information. In the present study, it is expected that those high in uncertainty would benefit the most from the procedural tape, as this tape provides the most specific information about radiation therapy. As the effects of social comparison information may also be influenced by personality characteristics, it was examined whether the influence of uncertainty on the effects of the social comparison information would remain evident even when taking into account relevant dispositional factors, such as social comparison orientation and neuroticism.

It is increasingly acknowledged that comparison processes are not only influenced by situational factors, such as uncertainty, but also by more stable factors such as personality characteristics. It seems that people differ in the extent to which they are interested in and affected by social comparison information. The interest in the role of individual differences in social comparison processes is rapidly increasing (see Wheeler, 2000 for a review). Most studies have focused on self-esteem (e.g., Aspinwall & Taylor, 1993; Reis, et al., 1993) and depression (e.g., Ahrens & Alloy, 1997), but the present thesis focuses on the roles of neuroticism, extraversion, and social comparison orientation. In Chapter 5, the roles of neuroticism, extraversion, and social comparison orientation in moderating the short-term effects of the different types of social comparison information on mood are examined. In Chapter 6, the role of social comparison orientation in moderating the long-term effects of the different types of social comparison information on the global quality of life of cancer patients is examined.

**Neuroticism**

A number of studies have been done into the moderating effects of neuroticism on the affective responses to social comparison information (e.g., Gilbert & Allan, 1994; Van der Zee, et al., 1998; Van der Zee, Oldersma, et al., 1998). Neuroticism is characterized by a tendency to experience negative and distressing emotions and to possess associated behavioral and cognitive traits. Among the traits that define neuroticism are fearfulness, irritability, low self-esteem, social anxiety, poor inhibition of impulses, and helplessness (Costa & McCrae, 1987).
In general, people high in neuroticism tend to set extremely high standards for themselves and tend to underestimate their own performance (Eysenck, 1947). This may cause them to feel less confident in their ability to deal with a situation. More importantly, those high in neuroticism seem to react differently to social comparison information than those low in neuroticism. Van der Zee, Buunk, and Sanderman (1998) exposed cancer patients to simulated interviews with a fellow patient doing better (upward comparison) or doing worse (downward comparison). They found that those high in neuroticism experienced a higher need for social comparison and reported more negative affective consequences of comparison than those low in neuroticism, especially after upward comparison. Similarly, Van der Zee, Oldersma, et al. (1998) found that neuroticism was associated with a higher interest in social comparison and with less favorable reactions to social comparison. Thus, those high in neuroticism selected more interviews with fellow patients than those low in neuroticism, but experienced more negative affect after reading the interviews.

It seems that neuroticism is associated with an information processing style that is detrimental to the self (Young & Martin, 1981). When confronted with information about fellow patients, individuals high in neuroticism tend to focus on the negative implications. In a study among nurses, Buunk, Van der Zee, and Van Yperen (2001) found that those high in neuroticism identified more with others doing worse, and identified less with others doing better. That is, those high in neuroticism seem to process social comparison information in a self-defeating way. Similar results have been found among cancer patients. Van der Zee, Buunk, Sanderman, Botke and Van den Bergh (1999) found that patients high in neuroticism generally tended to identify with fellow patients doing worse.

**Extraversion**

Very little research has been done into the role of extraversion in moderating the effects of social comparison information. Extraversion is characterized by sociability, gregariousness, optimism, and affiliation tendencies (Costa & McCrae, 1985; Hills & Argyle, 2001). Furthermore, individuals high in extraversion are characterized by well-developed social skills, numerous friendships, enterprising vocational interests, and participating in sports and clubs (McCrae & Costa, 1999).

Eysenck (1967) explained the difference between introverts and extraverts in terms of cortical arousal. The extravert has a low level of cortical arousal, and is not easily aroused. Therefore, the extravert seeks stimulation in the company of many people, seeks out people to talk to, and engages in many social interactions, which are a major source of happiness. Accordingly, extraverts are characterized by seeking arousal-producing stimuli (Berlyne, 1960; Eysenck, 1981). In contrast, the introvert has a high level of cortical arousal and consequently has a low
arousal threshold. The introvert can function without high levels of external stimulation. Accordingly, introverts will attempt to avoid arousal-producing stimuli (Berlyne, 1960; Eysenck, 1981).

Several studies have found that extraversion and neuroticism are negatively correlated with each other. Eysenck (1967) proposed that extraversion and neuroticism are correlated only among those high in neuroticism. That is, among those high in neuroticism, there are likely to be more individuals low on extraversion, but among those low in neuroticism, it is not likely that there will be more individuals high in extraversion. However, Buckingham, Charles, and Beh (2001) found a simple relationship between extraversion and neuroticism. They found more introverts among those high in neuroticism and more extraverts among those low in neuroticism.

A few studies have examined the role of extraversion in social comparison processes (e.g., Gilbert & Allan, 1994). In a study among psychology students, Olson and Evans (1999) found that extraverts were more likely than introverts to compare themselves with others worse off. Among cancer patients, similar results have been found. A study among breast cancer patients, for example, revealed that extraverts were more inclined to compare themselves with others doing worse (Van der Zee, et al., 1998). In addition, Van der Zee et al. (1999) found that patients high in extraversion tended to identify themselves with other patients regardless of how these patients were doing; that is, they feel a closeness to these fellow patients. At the same time, they tended to contrast their situation with the situation of other patients doing better. This suggests that extraversion may be associated with a greater responsiveness to social comparison information.

**Social comparison orientation**

A number of researchers have acknowledged that some individuals are more inclined to engage in social comparison than other individuals (e.g., Brickman & Bulman, 1977; Hemphill & Lehman, 1991; Steil & Hay, 1997; Taylor, Buunk, Collins & Reed, 1992). That is, people differ in the extent to which they engage in social comparison. Recently, Gibbons and Buunk (1999) introduced the concept of social comparison orientation. This refers to the disposition of individuals who are strongly focused on social comparison, who are particularly sensitive to their own standing relative to others, and are particularly interested in information about the thoughts and behaviors of others in similar situations. According to Gibbons and Buunk (1999), individuals high in social comparison orientation are characterized by a heightened uncertainty about themselves, accompanied by a relatively strong dependency on other people for their self-evaluation. A study among cancer patients (Van der Zee, Oldersma, et al., 1998), for example, showed that those high in social comparison orientation were more inclined to select and attend to information about fellow patients. The typical high comparer is someone...
who is more interpersonally than introspectively oriented, has a relatively high
degree of uncertainty about the self, and wishes to reduce this uncertainty by
paying attention to how others are doing (Gibbons & Buunk, 1999).
Besides a heightened interest in comparison information, people high in social
comparison orientation are also more strongly affected by social comparisons
(Gibbons & Buunk, 1999). This seems to be particularly the case when it involves
comparison with others doing worse (downward comparison). In several studies,
there has been found that people high in social comparison orientation experience
more negative affect after downward comparisons than those low in social
comparison orientation (Buunk, Ybema, Gibbons & Ipenburg, 2001; Van der
Zee, et al., 1998). In contrast, a study on relationship satisfaction indicated that
only those high in social comparison orientation reported a higher relationship
satisfaction when actively engaging in downward comparison (Buunk, Oldersma
& De Dreu, 2001).

The present thesis
The present thesis focuses on social comparison processes among cancer patients.
Particularly, it focuses on the kinds of comparison information cancer patients
prefer and on how they react to social comparison information on different
dimensions.
In Chapter 2, the types of social comparison information and social comparison
contact cancer patients prefer are examined. In a sample of 60 (ex-) cancer
patients who participated in a course ‘Coping with cancer’, it is examined whether
they preferred to receive information about or have contact with fellow patients
who were better or worse off than they were. Furthermore, factors that may
influence these preferences are examined.
In the subsequent chapters, the effects of an intervention based on social
comparison theory (Festinger, 1954) are examined. Among 226 cancer patients
who were about to undergo radiotherapy the effects of three different audiotapes
containing different types of social comparison information are examined. On
the procedural tape, a man and woman discuss their illnesses and radiation
treatments; on the emotion tape, they focus on the emotional aspects of these
issues; and on the coping tape they focus on the ways they had been coping.
In Chapter 3, the main effects of these audiotapes are discussed. The differential
effects of these tapes are examined on subjective understanding about radiation
therapy, validation and recognition of emotions, self-efficacy, and mood.
In Chapter 4, the role of uncertainty about cancer and radiation therapy in
moderating the effects of the audiotapes is examined. While previous studies
have shown that situational uncertainty fosters the need for social comparison
information, the present study examines whether uncertainty about cancer and
radiation therapy influences the reactions to different types of social comparison information.

In *Chapter 5*, the roles of Eysenck’s personality dimensions, extraversion and neuroticism, as well as social comparison orientation (Gibbons & Buunk, 1999) in moderating the effects of the audiotapes are examined. Although a number of studies have focused on the influence of neuroticism and extraversion on social comparison among cancer patients, none of these studies has examined the influence of these personality traits on the effects of different dimensions of social comparison information.

In *Chapter 6*, the long-term effects of the audiotapes on global quality of life are examined, and, in particular, the role of social comparison orientation in moderating these effects. While an increasing number of studies indicate that social comparison orientation may moderate the short-term effects of engaging in social comparison, only a few studies have found long-term effects (e.g., Blanton, Buunk, Gibbons & Kuyper, 1999; Buunk, Zurriaga, Gonzalez-Roma, and Subiritas, in press).

In *Chapter 7*, the main findings that are reported in the present thesis are reviewed and discussed. Theoretical as well as practical implications are discussed.

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1 Chapters 3, 4, 5, and 6 are based on research articles that have either been submitted or published. Therefore, there is some overlap in the theoretical introductions of these chapters, especially in the discussion of the intervention. However, this overlap allows the reader to read each chapter independently, without cross-referring to other chapters.