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Social comparison and coping with cancer treatment

Karen Van der Zee*, Bram Buunk, Robbert Sanderman, Gerrit Botke, Fons van den Bergh

Department of Personality Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands

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Abstract

In the present study scales were developed as indicators of four social comparison processes of respectively identification with others who are either doing better or worse and contrasting one's situation against the situation of either upward or downward comparison others. In a sample of 112 cancer patients, support was obtained for the validity of these scales. First, the internal consistency and stability of the scales were high. Interestingly, higher order factor analyses showed two basic factors labeled 'positive interpretation' (encompassing upward identification and downward contrast) versus 'negative interpretation' (encompassing upward contrast and downward identification). In addition, it was shown that the tendency to identify oneselves with others who are doing better and to contrast oneselves against others who are doing worse were moderately but significantly associated with a basic tendency to engage in confrontive coping styles, such as reinterpretation/growth, social support and active coping. The theoretical significance as well as the therapeutic implications of the findings are discussed.

Keywords: Social comparison; Coping; Cancer treatment

1. Introduction

One out of every three individuals develops cancer at some point in life. Imagine that you go to your physician because you feel tired all the time, assuming that he or she will tell you that you work too hard and that you end up knowing that you suffer from incurable leukaemia.

* Corresponding author. Tel.: +31-50-363-6352; fax: +31-50-363-6304.
E-mail address: k.i.van.oudenhoven-van.der.zee@ppsw.rug.nl (K. Van der Zee)

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No one will deny that such an experience is threatening and asks for a complete reevaluation of who you are and what you strive for in life. Remarkably, most individuals seem to adapt to such threatful events rather effectively. For example, several studies among patients suffering from serious diseases such as cancer (Morris, Greer, & White, 1977; Cassileth et al., 1984; Penman et al., 1986; Vinokur, Threatt, Caplan, & Zimmerman, 1989; Van Knippenberg et al., 1992) or spinal cord injuries (Schulz, & Decker, 1985) have shown that these patients seem to be able to maintain a sense of well-being that is comparable to that of individuals who are not confronted with serious health threats. Although, of course, not everyone readjusts completely (Silver, & Wortman, 1980), most people manage to readjust rather effectively to problems with their health. Individuals seem to be able to cope with serious health problems by making use of the support from individuals in their social networks, that is their beloved, their friends and family members, and by using their individual coping resources (Gurin, Veroff, & Feld, 1960; Wills, 1982; Taylor, 1983). Lazarus and Folkman (1984) define coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person".

In the present research the interest was in one particular strategy that may play an important role in coping with health problems. Research has shown that when confronted with serious health problems, people seem to relate their own situation to the situation of others. This process might be helpful when adapting to the threatful situation they have to face (e.g. Wood, Taylor, & Lichtman, 1985; Molleman, Pruyn, & Van Knippenberg, 1986; Taylor, Buunk, & Aspinwall, 1990; Affleck, & Tennen, 1991; Suls, Marco, & Tobin, 1991; Taylor, Buunk, Collins, & Reed, 1992a; Buunk, 1994). Earlier studies have provided evidence for the use of social comparison in a range of life contexts, including health problems (Gibbons, & Gerrard, 1991). It has for example been shown that by selectively using information from the social environment patients with serious diseases may obtain a relatively favourable comparison with one or more target others (e.g. Gerrard, Gibbons, & Sharp, 1985; Wood et al., 1985; DeVellis et al., 1990) and that favorable comparison situation then produces an increase in subjective well-being for the comparer (Affleck, Tennen, Pfeiffer, Fifield, & Rowe, 1987; Van der Zee, Buunk, & Sanderman, 1995; Van der Zee et al., 1996a; see also Wills, 1987, 1997). In the present study an instrument for measuring identification and contrast processes in social comparison was developed and evaluated. First, the reliability and internal structure of the scales were examined. Second, in order to examine the validity of the instrument, its relationship with general coping styles was examined among patients who were receiving cancer treatment.

1.1. Identification and contrast processes in social comparison

Traditionally, it has been supposed that under stressful circumstances, such as confrontation with a life-threatening disease, individuals tend to compare their situation primarily with the situation of others who are doing worse (Hakmiller, 1966; Wills, 1981; Wood et al., 1985; Taylor et al., 1990) and that such downward evaluations may contribute to well-being (Affleck et al., 1987; for an overview, see also Taylor, & Brown, 1988; Van der Zee et al., 1996a). This supposition is built upon the assumption that individuals contrast their situation with the situation of the comparison other. In such a case, seeing that other patients are doing worse

may lead to the comforting conclusion that one is at least doing better than some others. However, not all studies support the notion that social comparisons are evaluated positively by patients suffering from serious illnesses such as cancer. Even more so, a number of studies among cancer patients suggests that victims of cancer avoid potential downward comparison targets (Dunkel-Schetter, & Wortman, 1982; Dakof, 1986; Molleman et al., 1986). Taylor and Lobel (1989) argue that whereas explicit evaluation of one's situation vis-à-vis less fortunate others may be comforting, affiliation with and information seeking about fellow sufferers who are doing worse may be rather depressing and may therefore be avoided by cancer patients. Face-to-face confrontations with someone else whose illness has progressed further, for example in the physician's waiting room are not likely to be encouraging (e.g. Collins, Dakof, & Taylor, 1988; Gibbons, & Gerrard, 1991).

Indeed, Taylor and Lobel (1989) proposed that although cancer patients will predominantly evaluate their situation against the situation of fellow patients who are doing worse, they will prefer actual contact with others who are doing better. Fellow patients faced with comparable health problems who are better off may provide information that may assist one's problem solving efforts. Think for example about a woman with breast cancer who may regard the optimism and fighting spirit she observes in a fellow breast cancer patient as a real example for herself. She probably may have learned something about effective coping from this example. Empirical evidence supports the idea that individuals under stress prefer actual contacts with others who are better off and that such upward contacts are evaluated more positively among cancer patients (e.g. Molleman et al., 1986; Taylor, Aspinwall, Guiliano, Dakof, & Reardon, 1993; Van der Zee, Buunk, & Sanderman, 1998a).

Although Taylor and Lobel (1989) argued that actual contacts with patients who are physically deteriorating are threatening for cancer patients, they do not explain *why* these downward contacts may be threatening. Moreover, the assumption that the direction of comparison is linked to the mode of comparison (explicit evaluation versus actual contact) has been challenged by studies of for example Gerrard et al. (1985) and by DeVellis et al. (1990). In a study among self-help groups for bulimic patients, Gerrard et al. (1985), showed that all participants preferred comparison with someone having a fairly severe case of bulimia. DeVellis et al. (1990) provided arthritis patients with an opportunity to choose a folder describing an arthritis patient who was doing worse or doing better than the subject and found that 64.2% chose downward information. These studies showed a clear preference for actual information about fellow patients who were doing worse. Moreover, in an earlier diary study we showed that the daily comparisons of cancer patients evoked much more positive affect and much less negative affect when they were downwardly directed than when they were laterally or upwardly directed, despite the fact that the majority of those comparisons reflected actual interactions (having talked with someone, or seen someone) (Van der Zee, Wheeler, Buunk, Sanderman, R., Van den Berg, & De Jong, submitted for publication).

Buunk and Ybema (1997) have suggested that upward and downward comparison may be interpreted both in a positive and in a negative way (see also Buunk, Collins, Taylor, VanYperen, & Dakof, 1990). They argue that interpretation of social comparison information is dependent upon whether individuals contrast themselves or identify themselves with comparison targets. The traditional idea was that in socially comparing themselves, individuals contrast their situation against the situation of the comparison other. In the case of downward

comparison this leads to the comforting conclusion that one is better off, whereas in the case of upward comparison this leads to the threatening conclusion that one is doing worse. In contrast, when individuals identify with the comparison target they may feel worse when they compare with downward comparison targets (e.g. Ybema, & Buunk, 1995; Buunk, & Ybema, 1997; see also Collins, 1996). Identification has been defined in terms of closeness to the target (Tesser, 1988), forming a unit or a bond with the target (Heider, 1958; Miller, Turnbull, & McFarland, 1988) and being similar in personality (Wills, 1991). Because in identification one assumes similarity to the comparison target (Collins, 1996), the target's position on the comparison dimension may influence the expectations of one's own future standing on the dimension. Interestingly, in the sociological literature, common fate has been regarded an even stronger determinant of identification with social groups than similarity (Campbell, 1958). Because we believe that in the context of serious illness, perceiving that you share a common fate with someone else, rather than perceiving that you are similar (which is seldom the case), is the most central aspect of identification, identification was operationalized as *future similarity*. Wills (1991) suggested that downward comparison may be threatening only when these comparisons invoke negative future similarity, that is when individuals perceive that it is likely or possible that they will become like the comparison target in the future.

The instances from the literature of a clear preference for upward comparisons (Dunkel-Schetter, & Wortman, 1982; Dakof, 1986; Molleman et al., 1986) are presumably examples of identification with the target. When an individual identifies with an upward comparison target, he or she will probably perceive that it is likely to become like the comparison target in the future. In that case upward comparisons may be inspiring (Helgeson, & Taylor, 1993) and may meet motives of self-improvement (Wood, 1989). Van der Zee et al. (1998a) for example showed that breast cancer patients displayed more positive reactions to concrete information about a fellow patient who was doing better than to information about a fellow patient who was doing worse. Moreover, they showed that the more individuals identified themselves with upward comparison targets, the more positive feelings they experienced following the comparison. In a second experimental study it was shown that when given the opportunity to select interviews with fellow patients on their experiences, patients clearly preferred to read interviews with patients who were better off and also showed more positive reactions to such interviews (Van der Zee, Oldersma, Buunk, & Bosch, 1998b).

To summarize, in comparing themselves with others, patients may either contrast themselves or identify with the comparison target. When it concerns downward comparison targets, contrast is associated with the comforting conclusion that one is better off, whereas identification leads to the threatening realization that it is possible to decline. On the other hand, contrasting oneself with an upward target results in a threatening perception that one is worse off, whereas identification leads to the comforting realization that it is possible to improve. The aim of the present study was to develop scales aimed at measuring these four comparison processes of upward and downward identification and upward and downward contrast and to examine the psychometric qualities of the developed scales. More specifically, first the internal consistency, scale-intercorrelations and stability over the course of treatment were considered. Earlier studies have revealed that there are stable individual differences in social comparison processes (Van der Zee, Buunk, & Sanderman, 1996b; Gibbons, & Buunk, 1999). In general, coping styles are often regarded as dispositional tendencies (e.g. Watson, &

Hubbard, 1996) and the same seems to hold for social comparison. Gibbons and Buunk (1999) for example found a test–retest reliability of 0.72 over eight-months for a scale aimed at measuring social comparison orientation (INCOM). Although the use of identification-contrast processes may to some extent be affected by point of treatment, it was expected that such processes do reflect stable individual differences and will therefore show reasonable stability over time. Secondly, the validity of the instrument was examined by considering its relationship with general coping styles.

1.2. Social comparison and coping

As was stated earlier, in the present study social comparison was regarded as a strategy that may play an important role in coping with health problems. Coping may be defined as cognitive and behavioral efforts to master, reduce or tolerate the internal and/or external demands that are created by the stressful transaction (Lazarus, & Launier, 1978; Folkman, & Lazarus, 1980). Essential to this definition is that coping is defined regardless of its outcomes, that is whether the efforts result in enhanced well-being or not. The coping literature usually distinguishes between three main (protective) functions of coping: *instrumental coping*, i.e. management of the problem causing the distress through elimination or modification of the conditions giving rise to it, *appraisal-focused coping*, i.e. changing the perception of the meaning of the experience so as to neutralize its problematic character, and, finally, *emotion-focused or palliative coping*, involving the regulation of emotional distress produced by the problem (Pearlin, & Schooler, 1978; Folkman, & Lazarus, 1980; Moos, & Schaefer, 1984). Thereby, instrumental coping and appraisal-focused coping may be regarded as *active* coping strategies, because they represent active attempts to reduce threat either by eliminating the problem or by changing its meaning. Although the disease itself is regarded uncontrollable, cancer patients may use behavioral strategies to deal with practical problems they are confronted with as a result of their illness, for example by exercising or keeping up a healthy diet in order to keep in good shape. The appraisal-focused strategies encompass mechanisms such as cognitive reinterpretation or attribution and are also referred to as defensive reappraisal or cognitive coping (Lazarus, 1966; Lazarus, & Launier, 1978). Emotion-focused coping strategies are referred to as *passive strategies* because nothing is done to reduce the threat itself (Wills, 1997). Examples of passive strategies are responding with anger, seeking distraction, wishful thinking or helplessness.

Taylor and Lobel (1989) were the first authors who explicitly linked social comparison to coping with serious illness and argued that social comparison processes are aimed at regulation of emotional states and problem solving in response to highly stressful events. In the present study we were interested in the relation between upward and downward contrast and identification processes and general coping styles. Both downward contrast and upward identification seem to represent active attempts to reduce the threatening meaning of cancer diagnosis. Both mechanisms reflect an optimistic tendency to focus on the positive side of things and earlier studies have suggested that such optimistic tendencies are associated with the use of active coping strategies (Scheier, Weintraub, & Carver, 1986). More specifically, Taylor and Lobel (1989) argued that downward evaluations seem to be clear efforts to regulate emotions by making the person feel better in comparison with worse off others, whereas

upward contacts may also serve as a method for meeting emotional needs, by providing hope, motivation and inspiration. The emotion regulating processes as referred to by Taylor and Lobel in relation to upward and downward social comparison in fact represent *active* attempts to change the negative or maintain a positive perception of the situation (appraisal-focused coping) rather than *passive* emotional responding. Consistently, Wills (1997) regards downward comparison as an active appraisal-focused strategy. Assuming that downward evaluation usually involves contrasting oneself against someone who is doing worse whereas upward contacts involve identification with a more fortunate comparison target, in the present study it was expected that upward identification and downward contrast are both related to *active*, *appraisal*-focused mechanisms. Taylor and Lobel (1989) assumed that upward contacts may be viewed simultaneously as emotion-focused efforts, but also as problem-solving efforts, by providing a person with information valuable for potential survival and successful coping. For example, by observing how fellow patients treat their wound or fight their nausea a patient can learn how to treat his or her own wound or nausea. It was therefore expected that upward identification is also related to active, instrumental mechanisms. No relationship between downward contrast and active, instrumental coping was expected. Contrasting one's situation against the situation of someone else who is doing worse seems not to be very helpful in active attempts to change the situation itself because it does not provide any information that is useful for effective coping (e.g. Wood et al., 1985; Wills, 1987).

Further, in the case of downward identification and upward contrast, nothing is done to reduce the problem or to change its threatening meaning. Both mechanisms reflect a pessimistic tendency to focus on the negative interpretation of incoming social information, and earlier studies have revealed that such pessimism is associated with passive coping strategies such as denial and distancing (Scheier et al., 1986). Consistently, Wills (1997) regards downward identification as a passive strategy, arguing that if people focus on the fact that they will become like the worse off other their behavior may be defined as passive avoidance or helplessness. In the present study, it was therefore expected that both strategies would be associated with *passive* coping strategies.

2. Method

2.1. Sample and procedure

Patients who were treated for various forms of cancer with chemotherapy and/or radiotherapy in three hospitals in the Northern part of the Netherlands were approached for participation in the study by their physicians (see also Van der Zee, Buunk, Sanderman, Botke, & Van den Bergh, in press). Before entering the study patients signed an informed consent and were told that the information they would provide would be treated confidentially and that participation or refusal to participate would have no implications for their treatment in the hospital. Patients who suffered from other severe chronic diseases, patients who had an expected survival of less than a year and patients who received treatment for longer than six months were excluded from the study. On the whole 112 patients entered the study, 21 chemotherapy and 91 radiotherapy patients. In terms of age-sex characteristics, the sample was

38% male and 62% female, with a mean age of $M = 57.2$ (S.D. = 12.6) (means were $M = 63.7$ (S.D. = 11.8) and $M = 53.2$ (S.D. = 11.5) for males and females, respectively). The group consisted of patients suffering from breast cancer ($N = 56$), prostate cancer ($N = 19$), bladder cancer ($N = 3$), colon cancer ($N = 4$), lung cancer ($N = 6$), throat cancer ($N = 8$), (Non)-Hodgkin ($N = 6$), brain tumors ($N = 4$), cervical cancer ($N = 2$), testicular cancer ($N = 2$), skin cancer ($N = 1$) and Kahler ($N = 1$). At the beginning (T0), approximately five weeks later, at the end of treatment (T1) and three months after finishing treatment (T2), patients received a written questionnaire and were interviewed at home.

2.2. Instruments

2.2.1. Coping

Coping preferences were assessed by a 38-item dispositional version of the COPE Inventory (Carver, Scheier, & Weintraub, 1989). The COPE is designed to assess the various cognitive and behavioural strategies that people may use to manage stress. Coping preferences are assessed by asking subjects to complete the inventory with reference to how they *usually* attempt to cope with stress in their lives. For the present purpose, the introduction to the items was adjusted in order to focus respondents on the way they usually deal with their illness. Response choices were from *I usually don't do this at all* (1) to *I usually do this a lot* (4). First, the COPE has subscales for *active coping* (''I concentrate my efforts on doing something about it...'': 11 items, $\alpha = 0.85$), *social support* (''I talk to someone who is able to do something concrete about the problem'': 8 items, $\alpha = 0.85$) and *positive reinterpretation/growth* (''I try to see it in a different light, to make it seem more positive''; 4 items, $\alpha = 0.65$). Reinterpretation/growth may be regarded as an active, appraisal-focused strategy and both active coping and social support as active, instrumental strategies. In addition, the instrument has scales for *turning to religion* (''I put my trust in God''; 4 items, $\alpha = 0.96$), *acceptance* (''I accept that this has happened and that it cannot be changed''; 4 items, $\alpha = 0.73$), *restraint coping* (''I force myself to wait for the right time to do something''; 2 items, $\alpha = 0.36$), *focusing on and venting of emotions* (''I let my feelings out''; 2 items, $\alpha = 0.59$), and *denial* (''I daydream about things other than this''; 3 items, $\alpha = 0.32$). The latter four strategies may be regarded as *passive* strategies.

2.2.2. Social comparison

Scales were developed in order to measure identification and contrast with upward and downward comparison others. The items were based on statements that were collected from 20 audiotaped interviews the first author conducted with women with breast cancer who received radiotherapy and who participated in semi-structured interviews on coping and social comparison. The instrument was pretested and adjusted in a pilot study among breast cancer patients. The final scales consisted of three items, whereby respondents could give their answers on a five point scale running from *not at all* (1) to *strongly* (5). As an indicator of *downward contrast*, respondents were for example asked ''When I see others who experience more difficulties than I do, I am happy that I am doing so well myself''. *Downward identification* was for example measured by asking participants ''When I see others who are doing worse, I experience fear that my health status will decline''. Examples of items for *upward contrast* and

upward identification are, respectively: "When I think about others who are doing better than I am, I sometimes feel frustrated about my situation" and "When I meet others who are experiencing less problems than I am, it makes me happy realizing that it is possible for me to improve".

3. Results

3.1. Internal structure of the measures

First, the internal structure of the measures at T0 was examined. A factor analysis was performed on the twelve social comparison items. Imposing a four factor solution on the data, after an oblique rotation, a pattern of factor loadings was found that corresponded to our a priori scales (Table 1). All items for upward identification loaded highly on the first factor. High loadings on the second factor were found of the items for upward contrast. On the third factor all items for downward contrast loaded whereas the items for downward identification loaded highly on the fourth factor. Together, the four factors explained 84.2% of variance. Table 2 shows the scale reliabilities (Cronbach's alpha) and intercorrelations between the four scales. All scales showed high reliability coefficients. Interestingly, the scales for downward contrast and upward identification appeared to be highly correlated, whereas the scales for downward identification and upward contrast also showed a high correlation. Both the scales referring to downward comparison and the scales referring to upward comparison showed negative intercorrelations. Apparently, patients do not either react stronger to downward or upward comparison but they tend to interpret comparison information positively or negatively.

Table 1
Factor analysis on the social comparison items

	I	II	III	IV
Following downward comparison				
...experience fear to decline	0.00	0.54	−0.30	**0.62**
...fear that my future will be similar	−0.08	0.21	0.01	**0.92**
...fear that I will go along the same way	−0.02	0.31	−0.04	**0.86**
...am happy that I am doing so well myself	0.50	−0.15	**0.75**	0.00
...feel relieved about my own situation	0.38	−0.19	**0.81**	−0.07
...realize how well I am doing	0.45	−0.14	**0.78**	−0.11
Following upward comparison				
...realize that it is possible to improve	**0.87**	−0.09	0.34	−0.09
...am pleased that things can get better	**0.82**	−0.22	0.36	−0.01
...have good hope that my situation will improve	**0.87**	−0.10	0.30	−0.04
...it is threatening to notice that I am doing not so well	−0.17	**0.86**	−0.20	0.15
...feel frustrated about my own situation	−0.07	**0.86**	−0.02	0.29
...feel depressed realizing that I am not so well off	−0.21	**0.78**	−0.18	0.35

Table 2
Means, reliability coefficients and scale intercorrelations for the four social comparison scales. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

	α	*M*	S.D.	2	3	4
(1) Downward-identification	0.87	3.01	1.22	−0.25**	−0.19*	0.65***
(2) Downward-contrast	0.89	2.81	1.24		0.77***	−0.39***
(3) Upward-identification	0.93	3.14	1.32			−0.34***
(4) Upward-contrast	0.88	2.79	1.26			–

Table 3
Correlations between the scores for the social comparison and coping scales at T0 and T1, at T0 and T2 and results from MANOVA of time on the scores for each scale. For each row, means with unequal subscripts differ significantly at $p < 0.05$

Social comparison	$r_{T0–T1}$	$r_{T1–T2}$	$r_{T0–T2}$	M_{T0}	M_{T1}	M_{T2}	*F*
Downward-identification	0.58	0.59	0.70	2.99_a (1.26)[a]	2.99_a (1.27)	2.52_b (1.12)	$F(2, 68) = 11.12^{***}$
Downward-contrast	0.72	0.73	0.78	2.71_a (1.22)	2.76_a (1.26)	2.60_a (1.26)	$F(2, 68) = 1.25$
Upward-identification	0.72	0.65	0.65	3.03_a (1.32)	2.87_{ab} (1.19)	2.71_b (1.18)	$F(2, 66) = 3.04^{*}$
Upward-contrast	0.77	0.78	0.78	2.92_a (1.29)	2.85_a (1.28)	2.78_a (1.230	$F(2, 66) = 1.12$
Coping	$r_{T0–T1}$	$r_{T1–T2}$	$r_{T0–T2}$	M_{T0}	M_{T1}	M_{T2}	
Active coping	0.77	0.69	0.64	2.34_a (0.55)	2.07_b (0.61)	1.94_b (0.61)	$F(2, 50) = 10.51^{***}$
Social support	0.77	0.72	0.77	2.44_a (0.71)	2.19_b (0.59)	2.10_b (0.55)	$F(2, 52) = 15.66^{***}$
Religion	0.91	0.93	0.95	2.09_a (1.13)	2.01_{ab} (1.09)	1.99_b (1.09)	$F(2, 52) = 2.36$
Reinterpretation/growth	0.62	0.64	0.61	2.61_a (0.64)	2.47_{ab} (0.63)	2.43_b (0.64)	$F(2, 51) = 2.92$
Acceptation	0.62	0.47	0.57	2.89_a (0.670	2.84_a (0.800	2.86_a (0.72)	$F(2, 52) = 0.22$
Restraint coping	0.48	0.52	0.52	2.19_a (0.74)	2.05_{ab} (0.75)	2.01_b (0.68)	$F(2, 52) = 1.98$
Emotions	0.67	0.59	0.46	1.80_a (0.74)	1.63_b (0.60)	1.66_{ab} (0.53)	$F(2, 54) = 2.29$
Avoidance	0.67	0.57	0.70	1.70_a (0.580	1.64_{ab} (0.61)	1.55_b (0.520	$F(2, 54) = 3.36^{*}$

[a] Standard deviations are given in parentheses.

Consistently, a subsequent factor analysis on the scale level resulted in a two-factor solution: a first factor encompassing the scales for upward identification and downward contrast (with factor loadings of 0.93 and 0.92, respectively), and a second factor encompassing the scales for upward contrast and downward identification (with factor loadings of 0.88 and 0.92, respectively)[1]. Apparently, our four strategies may be further classified into two basic strategies in dealing with social comparison information: a tendency to focus on the negative interpretation of both upward and downward comparison information versus a tendency to focus on the positive interpretation of such information.

[1] A two-factor solution on the item-level explained 72.3% of variance.

Table 4
Correlations between the social comparison scales and the eight coping styles

	Downward comparison		Upward comparison	
	identification *r*	contrast *r*	identification *r*	contrast *r*
Active coping	0.06	0.30**	0.33**	−0.13
Social support	0.27***	0.28**	0.38**	0.17
Reinterpretation/growth	0.02	0.24**	0.24**	−0.02
Religion	−0.03	0.01	−0.01	−0.01
Acceptation	−0.04	0.05	0.03	−0.05
Restraint coping	0.20*	0.14	0.22*	0.03
Emotions	0.22*	0.13	0.16	0.19*
Avoidance	0.02	0.16	0.08	−0.06

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.2. Stability

Secondly, we were interested in the extent to which the social comparison strategies represent stable coping styles, or whether the scores for each strategy are more strongly susceptible to change than the general coping scales. Test–retest correlations were computed between T0 and T1 scores, between T1 and T2 scores and between T0 and T2 scores. The stability of both the social comparison and the coping scales did not differ for the treatment period (T0–T1) in comparison to the after-treatment period (T1–T2). Interestingly, about equally high mean stability coefficients were found for the social comparison scales and the general coping strategies (0.70 and 0.69, respectively for T0–T1, 0.69 and 0.64 for T1–T2 and 0.73 and 0.65 for T0–T2[2]).

Apparently, the stability of the four social comparison strategies is comparable to the stability of indicators of general coping. Correlations between test and retest scores give no indication of the direction of the association. Even when scores on the retest are considerably lower, a high positive association may be found. Therefore, time series analysis with MANOVA was performed to test if there was an effect of time on the mean scale scores for the four social comparison strategies and general coping (Table 3). With respect to the social comparison strategies, a significant effect of time was found on the scales for upward and downward identification. Patients engaged less often in upward and downward identification at the end of treatment and three months after finishing treatment than at the beginning of treatment. Examining the results for general coping, a comparable decline in scores resulted for active coping, social support and focusing on and venting of emotions. Thus, individual differences between patients in the use of both social comparison strategies and general coping seem to be fairly stable, but in reaction to treatment the use of a number of strategies generally

[2] The T0–T2 test–retest correlations for the coping scales were even somewhat lower in comparison to the correlations that were found for the social comparison strategies, probably due to the low internal consistency of some of the coping scales.

Table 5
Intercorrelations between the scales of the COPE. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

	2	3	4	5	6	7	8
Active coping	0.69***	0.05	0.71***	0.47***	0.49***	0.34***	0.30**
Social support	–	0.14	0.51***	0.42***	0.34***	0.48***	0.15
Religion		–	0.02	−0.04	0.13	0.12	−0.07
Reinterpretation/growth			–	0.48***	0.31**	0.28**	0.44***
Acceptation				–	0.19*	0.16	0.20*
Restraint coping					–	0.21*	0.17
Emotions						–	0.25**
Avoidance							–

declines, namely upward and downward identification and the coping strategies active coping, social support and avoidance.

3.3. Social comparison and coping

Table 4 shows correlations between the social comparison scales and the eight coping strategies. Significant correlations emerge between downward contrasting on the one hand and active coping, social support and reinterpretation/growth on the other hand. Similarly, upward identification was also significantly related to these three strategies. Thus, in line with expectations upward identification and downward evaluation are both related to coping efforts that are aimed at changing the meaning of the situation (reinterpretation/growth). Unexpectedly, both comparison scales were also related to coping efforts directed at changing the situation itself (active behavioral coping). It must be noted that contrary to expectations, upward identification was also related to a strategy that may be regarded as passive: restraint coping. In line with expectations, downward identification and upward contrast were both related to the *passive*, *avoiding* strategy of focusing on and venting of emotions. In addition,

Table 6
Regression of the social comparison strategies on the coping scales. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

	Downward comparison		Upward comparison	
	identification β	contrast β	identification β	contrast β
Active coping	0.08	0.39**	0.49***	−0.03
Religion	−0.09	−0.03	−0.08	−0.04
Acceptation	−0.13	0.17	−0.24*	−0.06
Restraint coping	0.17	−0.01	0.06	0.03
Emotions	0.20	−0.01	0.01	0.23
Avoidance	0.08	0.06	−0.06	−0.11
R	0.30	0.35	0.43	0.23
R^2	0.09	0.12	0.19	0.05

significant first-order correlations were found of downward identification with restraint coping. Unexpectedly, downward identification was also significantly related to social support.

Next, regression analyses were performed of the social comparison strategies on coping. Preliminary analyses revealed significant bèta-weights that did not express themselves in the first-order correlations and that were therefore hard to interpret. This may be due to the intercorrelations of the coping scales (Table 5) that were by no means independent. Particularly the scales for active coping, social support and cognitive reinterpretation were highly interrelated with intercorrelations exceeding 0.50. Considering this methodological problem and because we were not so much interested in the scale level but rather in what we labeled active coping mechanisms, it was decided to reanalyze the data combining these three scales into one 'active factor'. Table 6 shows the results of hierarchical regression of each social comparison strategy on coping. These data show even more clearly a positive relationship between active coping styles and the social comparison processes of upward identification and downward contrast. No relationship between active coping strategies and the processes of downward identification and upward contrast was found.

4. Discussion

Traditionally, it has been supposed that patients prefer social comparison with others *worse off* (downward comparison) and that such comparisons with less fortunate others are evaluated positively (Hakmiller, 1966; Wills, 1981; Wood et al., 1985; Taylor et al., 1990), whereas comparison with others *better off* (upward comparison) may lead to negative feelings (Morse, & Gergen, 1970; Salovey, & Rodin, 1984). This supposition is built upon the assumption that individuals contrast their situation with the situation of the comparison other. Recently, the identification-contrast model (Buunk, & Ybema, 1997) has been developed that assumes that upward as well as downward comparisons may be interpreted both positively and negatively (Buunk et al., 1990) dependent upon whether individuals contrast themselves or identify themselves with the comparison other. By identification with an upward target patients reach a positive interpretation of such information, namely that their situation may further improve whereas in identification with a downward target patients may reach the negative conclusion that they may further decline themselves. Although several factors in the comparison context have been identified that make either identification or contrast more likely to occur (e.g. the vividness of the information), the tendency to identify or contrast oneself with others may be a dispositional tendency. Earlier studies showing individual differences in affective reactions to social comparison information have presumed a mediating role of identification processes but have rarely actually studied such processes (Van der Zee et al., 1998a). Moreover, although social comparison is generally regarded as a coping style in dealing with stressors such as chronic illness, no studies have explicitly related indicators of social comparison to coping styles. This study was a first attempt to develop scales for identification and contrast processes in social comparison and to validate those scales. Thereby, we were interested to see whether the use of self-enhancing or self-defeating social comparison strategies indeed reflect general coping tendencies. It has been argued that some individuals may be continuously preoccupied with lowering their distress and they may use distracting coping strategies such as denying,

wishful thinking or self-criticism rather than more appropriate strategies in order to reach this end (McCrae, & Costa, 1986; Bolger, 1990; Heppner, Cook, Wright, & Johnson, 1995). The assumption of the present study was that a tendency to identify with others who are doing better and to contrast one's situation against the situation of others who are doing worse is associated with a basic tendency to engage in *active* coping styles whereas on the other hand a tendency to identify with others who are doing worse and to contrast one's situation against the situation of others who are doing better is associated with *passive* coping.

First, the present study provided support for the internal validity of the scales that we developed in order to measure the processes of upward and downward identification and upward and downward contrast, although the scales for upward identification and downward contrast and the scales for upward contrast and downward identification were highly interrelated. Consistently, higher order analyses showed two basic strategies that we labeled positive interpretation (encompassing upward identification and downward contrast) versus negative interpretation (encompassing upward contrast and downward identification). Apparently, a tendency to engage in self-enhancing upward comparisons is usually also associated with a tendency to engage in self-enhancing downward comparisons, whereas both self-defeating strategies also tend to go together. As Buunk and Ybema (1997) argue most individuals seem to have a 'wired in' tendency to develop a positive self-concept by attaining a subjective feeling of doing better than others on relevant dimensions. They seem to be able to attain this feeling by at the same time identifying themselves with better off others and contrasting themselves with worse off others, resulting in higher levels of adjustment and mental health (cf. Taylor, & Brown, 1988; Gilbert, 1990). Although the two factor solution gives a more thrifty presentation of the results, for diagnostic purposes information on the scale level may be more useful. At the individual level, it is helpful to know whether a patient feels bad because he always identifies himself with less fortunate patients or because he is frustrated because other patients are doing better, or both. The present data justify the use of the scales for that purpose.

Further, considering the correlations between the scores for the different processes obtained before and after treatment one may conclude that individuals are fairly stable in their tendency to interpret social comparison in a certain way and that the stability of the scales aimed at measuring social comparison processes is not lower than the stability of general coping styles. Apparently, social comparison may be regarded as a coping style, rather than specific behavior that is characteristic for a more general coping style. However, this does not mean that social comparison is insensitive to situational influences, in this case the impact of undergoing treatment and after-treatment changes. After treatment patients were less likely to engage in downward and upward identification. This may be due to the fact that at the beginning of treatment, patients have daily contacts with fellow patients in the hospital. Such contacts are more likely to elicitate identification (e.g. Buunk, & Ybema, 1997; Van der Zee et al., 1998a). At the end of treatment and three months later patients may rather compare themselves by thinking about patients in general or selectively choosing specific patients that make them appear favourably. Interestingly, the use of a number of coping styles also declined over time, whereby the strongest decline was found in the strategies of active coping and social support. During the course of treatment, patients may become less involved in attempts to actively change the situation itself: they may hand over the control over their situation to their

physicians and may restrict themselves to strategies aimed at changing the interpretation of the situation.

The expectation that upward identification and downward evaluation are both related to active cognitive coping styles was supported by the data. Unexpectedly, both upward identification and downward contrast were also related to coping efforts directed at changing the situation itself (active coping). We argued that although contrasting one's situation against the situation of someone else who is doing worse may help one control one's negative emotions by changing a negative interpretation of the situation into a positive one or by maintaining a positive interpretation of the situation, it may not be very helpful in active attempts to change the situation itself because it does not provide any information that is useful for effective coping (e.g. Wood et al., 1985; Wills, 1987). Wills (1997) also found dual loadings of downward comparison on both behavioral and cognitive coping. Wills argues that the relationship with active coping can be explained from the effortful aspects of social comparison through selectively focusing on cues that indicate a positive status for the self. Alternatively, it has been argued that downward contrasting may facilitate transition to active problem-focused coping and in many instances may be a necessary step along the way (Gibbons, & Gerrard, 1991). Indirect evidence for this assumption can be found in results from studies on optimism, which is usually defined as having positive expectations for the future and may therefore be considered as conceptually related to upward identification. Scheier, Carver and their associates (Scheier, & Carver, 1985; Scheier et al., 1989, 1986) found an optimistic nature to be associated with more active coping with stress. For example, in studies conducted with college undergraduates they found that optimism was associated with greater use of problem-focused coping, seeking of social support, and emphasizing the positive aspects of a stressful situation. Pessimism, in contrast, was associated with denial and distancing from that event, with focusing directly on stressful feelings and with disengagement from the goal with which the stressor was interfering. Findings of Aspinwall and Taylor (1992) suggest that the positive impact of optimism on health may be mediated by greater use of active coping and seeking social support and by the nonuse of avoiding coping. Taylor et al. (1992b) found that among seropositive men AIDS-specific optimism was associated with active coping. Apparently, focusing on the positive sight of social reality is not associated with refraining from confrontive behavior, as has been suggested (Weinstein, 1980, 1982). On the contrary, it may rather eliminate paralyzing negative emotions and thereby ease transition to more confrontive behaviors aimed at eliminating the problem.

Although less strongly, some support was also obtained for the expectation that the maladaptive coping strategies are related to avoiding coping mechanisms. Particularly focusing on and venting of emotions was associated with a negative interpretation of social comparison information. This supports the Wills (1997) assumption that if people think they will become like the worse off other this may lead them to give up trying to cope, resulting in avoidance and our own extending expectation that this would also hold when individuals realize they are worse off. Interestingly, seeking support was associated both with the strategies aimed at a positive and a negative interpretation of social comparison information. Apparently, this is due to the fact that by nature both social comparison and social support are associated with affiliation with others (Hill, 1987). Although social comparison information may be gathered by reading about other patients or by hearing stories about how other patients have coped

with their disease, patients may often get social comparison information by interaction with others. In a study on the daily comparisons of Hodgkin patients we found that 74.7% of the comparisons concerned actual interactions with the comparison others (Van der Zee et al., submitted for publication). Consistently, in a different study we found extraversion also both to be related to strategies aimed at a positive interpretation and to strategies aimed at a negative interpretation of social comparison information (Van der Zee et al., in press).

The data of the present study suggest that in facing chronic illness, some individuals may engage in a conglomerate of behaviors that have a negative impact on their well-being (e.g. Van der Zee et al., 1998a). Focusing on the strategies that are the main focus of interest here, namely a positive versus a negative interpretation of incoming social comparison information the implications for interventions can easily be derived. Therapeutic efforts may be aimed at replacing negative cognitions for positive cognitions (Ellis, 1962; Beck, 1967, 1976). Specifically, interventions may be aimed at focusing on positive self-other contrasts and on trying not to empathize too much with others who are doing worse.

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