

4

The role of social support and self-esteem in the presence and course of depressive symptoms: a comparison of cancer patients and individuals from the general population

Abstract

The aim of the present study was to examine the role of social support (i.e. perceived emotional support, lack of problem-focused emotional support, and negative social interactions) and self-esteem in depressive symptoms in 475 cancer patients and 255 individuals without cancer from the general population. Specifically, we examined: (a) the relationship between social support and self-esteem, (b) whether social support and self-esteem have independent effects on the presence and course of depressive symptoms, and (c) differences between patients and references in the associations of social support and self-esteem with depressive symptoms. Patients and references were interviewed and filled in a questionnaire at two points in time: at 3 months (T1) and 15 months (T2) after diagnosis. Social support and self-esteem were only weakly to moderately related to each other. Both social support and self-esteem were independently related to depressive symptoms (concurrently), with lower levels of social support and self-esteem related to higher levels of depressive symptoms. The longitudinal analyses showed that only social support significantly predicted future levels of depressive symptoms. The data provided clear evidence that, in general, social support and self-esteem were strongly related to depressive symptoms, regardless the presence of a stressful situation (i.e. a recent diagnosis of cancer). The only exception was found for problem-focused emotional support at T1. At three months after diagnosis, a lack of this type of support was in patients significantly stronger related to higher levels of depressive symptoms than in references.

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Introduction

Cancer patients may have to face multiple stressful situations during the course of the illness, such as disabling physical symptoms, limitations in daily activities, disfigurement, feelings of uncertainty, and diminished feelings of self-esteem. Not surprisingly, about a quarter of the cancer patients experience depressive symptoms in the initial period after diagnosis (McDaniel et al., 1995; Schroevers et al., 2001a). Over time, most longitudinal studies show a gradual decrease in depressive symptoms in cancer patients in the first year after diagnosis (Fallowfield et al., 1990; Goldberg et al., 1992; Grassi et al., 1997).

According to Moos and Schaefer (1984), social and personal *resources* play a crucial role in the process of adjustment to a life crisis such as a diagnosis of cancer. Especially social support has been frequently studied as a psychosocial resource (Hobfoll & Vaux, 1993; Thoits, 1995). Furthermore, social and personal resources are likely to be strongly interrelated (Hobfoll et al., 1990; Hobfoll & Vaux, 1993; Moos & Schaefer, 1993; Thoits, 1995). In the context of social support, self-esteem may be regarded as an important personal resource, since one of the major functions of social support is to bolster or maintain feelings of self-esteem (Curbow & Somerfield, 1991; Rowland, 1989b). Therefore, the goal of the present study was to examine the associations of social support and self-esteem with the presence and course of depressive symptoms and to determine whether these associations are stronger in recently diagnosed cancer patients than in references from the general population.

The support from family and friends is a valuable resource long believed to be associated with psychological well-being (Thoits, 1995). There are several explanations for this relationship. Social support (especially emotional support) may bolster or maintain feelings of *social identity* and *self-evaluations* (Cooley, 1902; Mead, 1934; Wills, 1981) and *social integration* (Durkheim, 1951), thus counteracting feelings of *loneliness* (Lepore, 1997). In cancer patients, the physical and psychosocial sequelae are likely to result in a greater need for social support (Wortman, 1984). Paradoxically, because of the fears and the stigma associated with the disease, cancer patients may experience problems in obtaining adequate support. Still, most cancer patients seem to experience an increase in social support in the initial period after diagnosis and are satisfied with the support they receive (De Ruiter, 1995; Tempelaar et al., 1989). The support from others may buffer the negative consequences of a diagnosis of cancer and is therefore of great importance for patients' adjustment to cancer (Helgeson & Cohen, 1996).

An important issue in the investigation of beneficial effects of social support on well-being is the lack of consensus about how social support should be defined. There exists a great variability in the operationalization of social support, regarding:

(a) the *type* of support (e.g. emotional, instrumental, or informational), (b) *perceived* availability (i.e. expectancies) versus actual *received* support, and (c) *amount* versus *satisfaction* with actual received support. This latter distinction incorporates the idea that social support should fit the needs of the person in order to be beneficial for well-being (Thoits, 1982).

These differences in the definition of social support make it difficult to interpret and compare the results of previous studies on social support among cancer patients. In general, a negative relationship has been found between the perceived availability or satisfaction with received (emotional) support and psychological distress (Alferi et al., 2001; Courtens et al., 1996; Grassi et al., 1997; Sollner et al., 1999). In contrast, a positive relationship has been found between received emotional support and psychological distress (De Leeuw et al., 2000). A possible reason for this latter finding may be that distressed persons have a higher need for support and thus seek and/or receive more social support, or alternatively, that an excess of support may lead to psychological distress (Lepore, 1997), possibly through undermining the persons' own coping capacities (Schreurs & De Ridder, 1997). Regarding the type of social support, the literature generally suggests that *emotional* support (characterised by love, respect, sympathy, understanding, listening, reassuring, and comforting) is particularly important for cancer patients and a lack of emotional support may be detrimental for patients' adjustment (Helgeson & Cohen, 1996; Wortman, 1984). Overall, these findings suggest that the perceived availability and the satisfaction with emotional support are most consistently associated with psychological well-being.

Previous studies on social support have mainly focused on the positive aspects of social relationships. Recently, there is a growing body of literature indicating that *negative* aspects of social relationships (characterised by conflict, criticism, and interference) are independent of positive aspects of support (Rook, 1984) and strongly related to psychological functioning (Coyne & DeLongis, 1986; Helgeson, 1993; Schreurs & De Ridder, 1997; Thoits, 1995). Among cancer patients, the few studies that have examined the associations of negative aspects of social relationships show that the amount of negative interactions is strongly related to psychological distress, even stronger than the positive interactions with others (Kuijjer et al., 2000; Manne et al., 1997; Manne et al., 1999; Pistrang & Barker, 1995).

Self-esteem is an important personal resource, which may reduce psychological distress and buffer the consequences of stressful events (Katz et al., 1995; Thoits, 1995). A possible explanation for this finding may be the universal need to like oneself (Maslow, 1970) and to hold positive self-evaluations (Taylor & Armor, 1996). Among cancer patients, most studies have studied self-esteem as an outcome variable. A diagnosis of cancer and its treatment may diminish self-esteem as a

result of, for instance, changes in body image, disruption of life goals, or a loss of intimate relationships. Still, studies that have compared self-esteem in cancer patients with healthy individuals generally report no differences between the two groups in self-esteem (Curbow & Somerfield, 1991; Katz et al., 1995).

Comparatively less attention has been paid to the role of self-esteem as a predictor of patients' psychological functioning. The few studies that have examined the association of self-esteem with psychological functioning show that a higher self-esteem is related to lower levels of depressive symptoms and higher well-being in cancer patients (Carpenter, 1997; Dirksen, 1989; Hobfoll & Walfisch, 1984).

As mentioned earlier, social and personal resources are strongly interrelated and generally, resources tend to enrich other resources.

For instance, the support from others may strengthen a person's self-esteem (Rowland, 1989b; Wills, 1985) and persons with a high self-esteem seem more likely to receive or perceive social support (Winnubst et al., 1988).

In line with this reasoning, most studies among cancer patients found a positive relationship between the perceived availability or satisfaction with social support and self-esteem (Carpenter, 1997; Dirksen, 1989; Douglass, 1997). It has been suggested that social support may counterbalance threats to self-esteem that occur during stressful periods, and therefore, social support may be especially important for feelings of self-esteem in the face

of a stressful situation such as a diagnosis of cancer (Hobfoll et al., 1990). Clearly, the interrelationship between social support and self-esteem is important and should be taken into account when examining the role of these resources in psychological well-being. In order to examine whether both resources are independently associated with well-being, they need to be studied simultaneously.

Another important issue that needs to be mentioned is the question whether resources are related to psychological well-being in *all* circumstances or particularly in the face of a stressful situation, such as a serious illness (Cassel, 1976; Cobb, 1976; Cohen & Wills, 1985). Since social support and self-esteem fulfil basic human needs, it can be hypothesised that they have a *main* effect on well-being, regardless the presence of a stressful situation (Vilhjalmsson, 1993). However, it can also be hypothesised that these resources are more important for well-being in people who are confronted with a stressful life-event, since the presence of resources may *buffer* the negative impact of such a situation (Hobfoll et al., 1990; Katz et al., 1995; Thoits, 1995). For instance, the availability of someone with whom a cancer patient can discuss illness-related concerns may help the patient to cope with the situation and to gain control over the overwhelming situation and his or her emotions (Aymanns et al., 1995; McColl et al., 1995; Sollner et al., 1999; Thoits, 1986). The few studies that have examined whether resources are more important for patients with a serious illness focused on

patients with a *chronic* illness (i.e. cancer or arthritis) (Druley & Townsend, 1998; Penninx et al., 1998). These studies found no differences between patients and healthy references (i.e. no chronic illness) in the associations of social support and self-esteem with depressive symptoms. In the present study, we focused on patients facing an *acute* life-threatening illness, that is, a recent diagnosis of cancer. It has been consistently found that the initial period after a diagnosis of cancer is most stressful for patients (see Spencer et al., 1998). We compared these patients with a reference group that consisted of individuals without cancer from the general population. As in daily life, both cancer patients and references could suffer from other chronic illnesses. The only difference between the two groups was the presence of an acute stressor (i.e. cancer).

The aim of the present study was three-fold: (a) to examine the relationship between social support and self-esteem, (b) to determine whether social support and self-esteem are independently related to the presence and course of depressive symptoms, and (c) to examine differences between recently diagnosed cancer patients and individuals without cancer from the general population in these associations among social support, self-esteem, and depressive symptoms.

We examined these associations at two points in time, that is, at 3 and 15 months after diagnosis. As mentioned in the previous paragraph, the initial period after diagnosis is particularly stressful for patients and may be regarded as a period of crisis. Eventually, however, the period of intense uncertainty and preoccupation with the illness will resolve and it can be expected that, at 15 months after diagnosis, the disease will be less prominent in daily life of most patients.

Methods

Sample

The data for the present study were collected as part of a longitudinal study on the quality of life of cancer patients in the year after diagnosis (De Ruiter, 1995; Schroevers et al., 2001a; Van der Zee et al., 1996). Cancer patients were recruited from 12 hospitals in the northern part of the Netherlands, with the assistance of the Dutch Cancer Registration of the Comprehensive Cancer Centre North Netherlands (CCCNN). Based on the cancer registration of the CCCNN, patients were selected on the basis of cancer site and disease stage. The inclusion criteria for study participation were: (a) age 18 years or older, (b) newly diagnosed with cancer, (c) no distant metastases, (d) a life expectancy of at least one year, and (e) informed on the diagnosis of cancer. A letter containing information about the project and a participation form was attached to the patients' medical status and patients were approached for participation in the study by their doctor. Patients were interviewed and filled in a questionnaire at three points in time: at 3 months, at 9 months, and at 15 months after diagnosis. The references were selected from the register office of

five townships in the same region as patients. These individuals without cancer from the general populations were matched at group level on age and gender with the patient group. These references were also interviewed and filled in a questionnaire at three points in time with the same intervals as patients. In the present study, we focused on the interview at 3 and 15 months after diagnosis, hereafter labelled as T1 and T2. These two points in the course of the illness are believed to capture the period of crisis (3 months) and short-term adjustment to cancer (15 months).

Over a period of two years, 516 patients returned the participation form. It has not been registered consistently how many cancer patients actually received a participation form by their medical specialist. Therefore, information on the exact response rate is not available. At T1, 475 (92% of the 516) entered the study and 403 patients (85% of 475) also participated at T2. The main reasons for drop out were serious illness and death. Based on the gender and age distribution of patients, 559 references were selected and sent a participation form. At T1, 255 (46% of 559) entered the study and

225 references (88% of 255) also participated at T2. The main reasons for drop out were unwillingness to participate, the impossibility to locate, and incomplete questionnaire data. Thus the final sample for the present study included 403 patients and 225 references who participated at both points in time.

In the analyses of the present study, we included those cancer patients and references who participated both at 3 months and at 15 months after diagnosis (T1 and T2, respectively). Patients ($n = 403$) and references ($n = 225$) who were included in the present study were compared with respectively patients ($n = 72$) and references ($n = 30$) who dropped out of the study after T1, on the main sociodemographic and medical characteristics. Compared to patients included in the present study, patients who dropped out were significantly more often diagnosed with lung or colorectal cancer, stage III or IV, treated with radiotherapy or chemotherapy (with or without surgery) ($p < .01$), and were more often male, older, and lower educated ($p < .05$). Furthermore, the patients who dropped out reported a greater lack of problem-focused support ($p < .05$). Comparisons between the references in the present study and references who dropped out revealed no significant differences on the sociodemographic factors, neither on the measures of social support, self-esteem, and depressive symptoms.

Measures

The Center for Epidemiologic Studies Depression (CES-D) scale is a 20-item self-report questionnaire of *depressive symptoms* (Radloff, 1977; Weissman et al., 1977). Each item is scored on a 4-point scale: (0) “rarely or none of the time” (less than once a week), (1) “some or a little of the time” (1-2 days a week), (2) “occasionally

or a moderate amount of time” (3-4 days a week), and (3) “most or all of the time” (5-7 days a week). In the present study, we used a sumscore based on the 16 negatively formulated CES-D items, with higher scores indicating more depressive symptoms. In a previous study, we found that a sumscore based on the 16 negatively formulated CES-D items, excluding the four positively formulated items, was a more valid measure of depressive symptoms, both in cancer patients and healthy individuals (Schroevers et al., 2000). Cronbach’s alpha of the scale in the present study was in the patient and reference group .86 and .84, respectively.

We used the Social Support List (SSL) to measure *social support* (Van Sonderen, 1991; Van Sonderen, 1993). Psychometric research has shown that this self-report questionnaire has good construct validity and high reliability (Van Sonderen, 1993). Based on the literature, we examined three different types of social support. First, we used the subscale “*Perceived Availability of Daily Emotional Support*” (9 items) (e.g. feelings of respect, trust, listening, and the ability to have a good conversation). Respondents are asked to indicate the extent to which they perceived social support on a 4-point scale, ranging from (1) “not at all” to (4) “very much”, thus higher scores indicate higher perceived availability of social support. Cronbach’s alpha for the scale was in the patient and reference group .87 and .85, respectively. Second, we used the subscale “*Lack of Problem-Focused Emotional Support Interactions*” (8 items) (e.g. reassuring, comforting, problem-solving, and advice). Respondents are asked to indicate the extent to which the amount of supportive interactions with others *differs* from their preferred amount of supportive interactions (thus taking into account the individual’s need for social support). Items can be scored on a 3-point scale: (1) “just right, this is as I would like to have it”, (2) “I do not really miss it, but it would be pleasant if it happened somewhat more often”, and (3) “I really miss it, I would like it to happen more often”. Thus higher scores indicate a greater lack of received problem-focused emotional support. Cronbach’s alpha was in the patient and reference group .90 and .85, respectively. Finally, we used the subscale “*Negative Interactions*” (7 items) (e.g. criticising, interfering, reproaching). The items were scored on a 4-point scale, ranging from (1) “seldom or never” to (4) “often”. Thus higher scores indicate more negative interactions. Cronbach’s alpha for the scale was in the patient and reference group .83 and .77, respectively.

Self-esteem was measured by the Rosenberg Self-Esteem scale (Rosenberg, 1965). A factor-analysis on the 10 items of the scale yielded two independent factors, based on the five negatively formulated items (e.g. “I think I’m no good at all”, “I feel useless”, and “I feel like a failure”) and the five positively formulated items (e.g. “I feel satisfied with myself” and “I feel positive about myself”) (Andrews, 1998; Ranchor et al., 1996). In the present study, we focused on the positively formulated self-esteem scale, since we were interested in the role of self-

esteem as a resource. Previous research has suggested that especially positively formulated self-esteem is strongly related to the recovery of depressive symptoms (Brown et al., 1990c). Compared to the negatively formulated items, positively formulated self-esteem may also be less likely to overlap with depressive symptoms (characterised by, amongst others, feelings of worthlessness). Items are scored on a 4-point scale: (1) “totally disagree”, (2) “disagree”, (3) “agree”, and (4) “totally agree”, thus higher scores indicate a higher self-esteem. Cronbach’s alpha in the patient and reference group was .76 and .73, respectively.

The *sociodemographic factors* (gender, age, marital status, and education) were collected in a semi-structured face-to-face interview. *Medical data* (site, stage, and treatment) were derived from the cancer registration from the Comprehensive Cancer Centre North Netherlands.

Table 1. Sample characteristics

	Patient group (n = 403) %	Reference group (n = 225) %
Gender (% female)	73	70
Age (mean \pm SD in years)	58 \pm 14	57 \pm 15
Marital status (% partner)	77	76
Education		
Primary	39	36
Lower vocational/secondary	39	35
Middle vocational/secondary	12	16
Higher vocational/university	10	13
Cancer site		
Breast	47	
Colorectal	27	
Gynaecological	16	
Lung	7	
Other	3	
Stage		
I	45	
II	44	
III-IV	11	
Initial treatment		
Only surgery	48	
Surgery and radiotherapy	22	

Surgery and chemotherapy	7
Surgery, radio- and chemotherapy	6
Surgery and hormonal therapy	4
Surgery, radio- and hormonal therapy	7
Other	6

Results

The sociodemographic and medical characteristics of the patient and reference group are described in Table 1. As can be seen, the majority of both groups were female, lower educated, and living with a partner. Using t-tests, we found no significant differences between the two groups in age and Chi-square analyses revealed no significant differences in gender, education, and marital status.

Next, we examined mean differences between the patient and reference group in social support, self-esteem, and depressive symptoms at T1 and T2. No significant differences between the two groups were found on self-esteem. At T1, however, patients reported significant more social support than the reference group, as indicated by higher levels of perceived emotional support ($t = -2.96, p < .01$), a smaller lack of problem-focused support ($t = 2.55, p < .05$), and less negative interactions ($t = 2.26, p < .05$). Moreover, cancer patients reported significantly more depressive symptoms than references, at T1 ($t = -4.45, p < .001$) and at T2 ($t = -2.94, p < .01$).

Intercorrelations among the study variables

Pearson's correlation coefficients were computed to examine the associations among the sociodemographic factors, social support, self-esteem at T1, and depressive symptoms at T1 and T2, in the patient and reference group separately (see Table 2).

Sociodemographic factors were weakly but significantly related to social support and self-esteem. For instance, younger persons reported more negative interactions than older persons, both in patients ($r = -.11, p < .05$) and in references ($r = -.28, p < .001$). Moreover, lower educated persons reported a lower self-esteem than those higher educated, both in patients ($r = .16$) and in references ($r = .22$) ($p < .01$). The interrelationships among the three types of social support were moderately ($r < .40, p < .01$), suggesting that they measure distinct aspects of social support. Self-esteem was moderately related to perceived emotional support, in patients ($r = .27$) and in references ($r = .33$) ($p < .001$), but only weakly to the other two types of social support ($r < .20, p < .05$).

In the patient group, depressive symptoms at T1 were significantly related to gender ($r = .23$) and age ($r = -.18$) ($p < .001$), indicating that female and younger

patients reported relatively more depressive symptoms. At T2, both gender ($r = .16$, $p < .01$) and education ($r = -.11$, $p < .05$) were related to patients' depressive symptoms, indicating that female patients and those with a lower education reported more depressive symptoms. In the reference group, depressive symptoms at T1 were significantly related to gender ($r = .15$, $p < .05$), marital status ($r = .25$, $p < .001$), and education ($r = -.14$, $p < .05$), showing that female references, those without a partner, and with a lower education reported more depressive symptoms. These relationships were also found at T2 ($p < .05$).

Table 2. Intercorrelations among the variables under study

Variable	1	2	3	4	5	6	7	8	9
1 Gender	-								
2 Age	<i>-.16 **</i>	-							
3 Marital status	<i>-.15 *</i>								
4 Education	<i>.14 **</i>	<i>.26 ***</i>	-						
5 Perceived emotional support	<i>.21 **</i>	<i>.31 ***</i>							
6 Lack problem-focused support	<i>-.12 *</i>	<i>-.25 ***</i>	<i>-.01</i>	-					
7 Negative interactions	<i>-.05</i>	<i>-.45 ***</i>	<i>-.23 **</i>						
8 Self-esteem	<i>.11 *</i>	<i>-.10</i>	<i>-.05</i>	<i>.06</i>	-				
9 Depressive symptoms T1	<i>.05</i>	<i>.07</i>	<i>.01</i>	<i>.12</i>					
10 Depressive symptoms T2	<i>.06</i>	<i>-.05</i>	<i>.01</i>	<i>-.03</i>	<i>-.36 ***</i>	-			
	<i>.10</i>	<i>-.01</i>	<i>.17 *</i>	<i>-.06</i>	<i>-.19 **</i>				
	<i>-.04</i>	<i>-.11 *</i>	<i>-.12 *</i>	<i>-.01</i>	<i>-.30 ***</i>	<i>.40 ***</i>	-		
	<i>.07</i>	<i>-.28 ***</i>	<i>-.05</i>	<i>.16 *</i>	<i>-.28 ***</i>	<i>.30 ***</i>			
	<i>-.13 **</i>	<i>-.09</i>	<i>-.07</i>	<i>.16 **</i>	<i>.27 ***</i>	<i>-.16 **</i>	<i>-.11 *</i>	-	
	<i>-.11</i>	<i>-.11</i>	<i>-.07</i>	<i>.22 **</i>	<i>.33 ***</i>	<i>-.19 **</i>	<i>-.17 **</i>		
	<i>.23 ***</i>	<i>-.18 ***</i>	<i>.03</i>	<i>-.01</i>	<i>-.23 ***</i>	<i>.51 ***</i>	<i>.42 ***</i>	<i>-.33 ***</i>	-
	<i>.15 *</i>	<i>.06</i>	<i>.25 ***</i>	<i>-.14 *</i>	<i>-.27 ***</i>	<i>.45 ***</i>	<i>.48 ***</i>	<i>-.29 ***</i>	
	<i>.16 **</i>	<i>-.09</i>	<i>.04</i>	<i>-.11 *</i>	<i>-.20 ***</i>	<i>.42 ***</i>	<i>.35 ***</i>	<i>-.30 ***</i>	<i>.68 ***</i>
	<i>.14 *</i>	<i>.07</i>	<i>.16 *</i>	<i>-.15 *</i>	<i>-.24 ***</i>	<i>.39 ***</i>	<i>.34 ***</i>	<i>-.26 ***</i>	<i>.55 ***</i>

Note. Correlations in the reference group are on the second line in *italic* figures. *** $p < .001$; ** $p < .01$; * $p < .05$.

Depressive symptoms were also significantly related to social support and self-esteem in both groups, indicating that persons with lower levels of social support and a low self-esteem reported more depressive symptoms, both at T1 and at T2. Both in patients and references, perceived emotional support was less strongly related to depressive symptoms at T1 ($r = -.23$ and $r = -.27$, respectively) than a lack of problem-focused support ($r = .51$ and $r = .45$, respectively) and negative interactions ($r = .42$ and $r = .48$, respectively) ($p < .001$). Finally, we found a strong correlation between depressive symptoms at T1 and T2, both in patients ($r = .68$) and in references ($r = .55$), respectively ($p < .001$).

Social support and self-esteem as predictors of depressive symptoms

We performed multiple regression analyses to test the associations of social support and self-esteem at T1 with depressive symptoms at T1. Since sociodemographic factors were significantly related to depressive symptoms and to social support or self-esteem, all analyses were controlled for gender, age, education, and marital status. Separate analyses were performed for each type of social support (i.e. perceived emotional support, lack of problem-focused support, and negative interactions). In each analysis, group (i.e. reference group = 0 and patient group = 1), social support, and self-esteem were first entered as predictors. Next, the two-way interactions of group by social support and group by self-esteem were entered. These interactions tested differences between the patient and reference group in the associations of social support and self-esteem with depressive symptoms. Standardised scores were used to compute the interaction terms. Only one interaction was significant. Therefore, we repeated the other analyses without the interactions terms.

As can be seen in Table 3, social support (each type) and self-esteem were independently related to depressive symptoms at T1, indicating that persons with low levels of social support and a low self-esteem experienced higher levels of depressive symptoms. Perceived emotional support was less strongly related to depressive symptoms than a lack of problem-focused support and negative interactions. When we performed an overall analysis (including group, all three types of social support, self-esteem, and all two-way interactions simultaneously), we found the same results as above. Only perceived emotional support failed to reach significance.

Comparisons of the patient and the reference group generally revealed no significant differences between the two groups in the associations of social support and self-esteem with depressive symptoms at T1. The only exception was found for problem-focused support. Following the method

Table 3. Multiple regression of depressive symptoms at T1 and T2 on social support and self-esteem at T1 in the total sample ($n = 628$)

	Depressive symptoms			
	T1		T2	
	ΔR^2	Beta	ΔR^2	Beta
Perceived emotional support				
Sociodemographic factors	.06 ***		.05 ***	
Depressive symptoms T1	-	-	.36 ***	.59 ***
Group (patient or reference)	.02 ***	.18 ***	.001	-.001
Perceived emotional support	.06 ***	-.18 ***	.001	-.04
Self-esteem	.05 ***	-.24 ***	.001	-.06
Lack of problem-focused support				
Sociodemographic factors	.06 ***		.05 ***	
Depressive symptoms T1	-	-	.39 ***	.59 ***
Group	.03 ***	.23 ***	.001	-.01
Lack of problem-focused support	.20 ***	.30 ***	.01 **	.11 **
Self-esteem	.06 ***	-.23 ***	.001	-.05
Group X support	.01 **	.15 **	-	-
Group X self-esteem	.001	-.02	-	-
Negative interactions				
Sociodemographic factors	.06 ***		.05 ***	
Depressive symptoms T1	-	-	.37 ***	.58 ***
Group	.03 ***	.21 ***	.001	-.01
Negative interactions	.16 ***	.37 ***	.01 *	.09 *
Self-esteem	.05 ***	-.24 ***	.001	-.04

Note. Dashes indicate that regression was not calculated. *** $p < .001$; ** $p < .01$; * $p < .05$.

recommended by Aiken and West (1991), analyses of this interaction showed that a lack of this type of support was especially in patients strongly related to higher levels of depressive symptoms.

Longitudinal analyses

The same multiple regression analyses were performed to examine whether social support and self-esteem at T1 could predict depressive symptoms at T2, controlling for depressive symptoms at T1. First, we tested the two-way interactions, but none of the interactions reached significance. Therefore, these were removed from the

analyses. As can be seen in Table 3, a lack of problem-focused support and negative interactions at T1 significantly predicted depressive symptoms at T2. In contrast, perceived emotional support and self-esteem at T1 were not significant predictors of depressive symptoms at T2.

Discussion

The aim of the present study was to examine the role of social support and self-esteem in depressive symptoms in recently diagnosed cancer patients and a reference group of individuals without cancer from the general population. The results indicated that social support and self-esteem were only weakly to moderately related to each other. Both social support and self-esteem were independently related to depressive symptoms (concurrently), showing that lower levels of social support and self-esteem were related to higher levels of depressive symptoms. Social support also significantly predicted depressive symptoms one year later (longitudinally). Overall, the findings clearly showed that, in general, social support and self-esteem were strongly related to depressive symptoms, regardless the presence of a stressful situation (i.e. a recent diagnosis of cancer).

Similar to other studies (Druley & Townsend, 1998), we found a rather weak relationship between social support and self-esteem, both in patients and in references. Only the perceived availability of emotional support was in both groups moderately strong related to self-esteem. A possible explanation for the weak relationship between social support and self-esteem may be the relatively older age of the participants (on average approximately 60 years). It has been suggested that social relationships are particularly important for self-esteem in younger persons (Andrews, 1998). Furthermore, positive self-evaluations may be a natural state of mind and people are able to protect themselves against threats to their self-esteem through self-enhancing cognitions (Taylor & Armor, 1996).

An important finding of the present study is that social support and self-esteem were independently related to the presence of depressive symptoms. Thus these resources seem to supplement each other, each fulfilling different basic human needs. Consistent with previous studies, our findings emphasise the strong effect of negative social interactions on depressive symptoms (Manne et al., 1997; Rook, 1984). It has been suggested that social and personal resources augment (rather than supplement) each other in relation to well-being (Thoits, 1995). Few studies have examined possible interactions between social and personal resources. The findings of these studies are difficult to compare due to differences in the definition of social support and the choice of personal resource, but overall, they provide weak evidence for strong interaction effects (Dalgard et al., 1995; Grassi et al., 1997; Riley &

Eckenrode, 1986). In the present study, we focused for theoretical reasons on the independent (main) effects of social support and self-esteem. Nevertheless, when we had a closer look at interactions, we found no significant interactions between social support and self-esteem.

All together, the findings favour the idea that social and personal resources supplement each other.

Consistent with other studies (Druley & Townsend, 1998; Penninx et al., 1998), we generally found no significant differences between patients and references in the associations of social support and self-esteem and the presence of depressive symptoms. These findings conform the notion of Thoits (1982, 1995) that psychosocial resources are likely to affect psychological well-being, regardless the presence of a threatening life-event. The only resource that was clearly more important for cancer patients' well-being was problem-focused emotional support. At three months after diagnosis, a lack of this type of support, characterized by reassuring, comforting, problem-solving, and advise was especially in cancer patients strongly related to higher levels of depressive symptoms. In the initial period after diagnosis, the availability of someone with whom the cancer patient can talk about his or her illness-related concerns seems to be of great importance for patients' adjustment (Classen et al., 1996; Helgeson & Cohen, 1996; Stanton et al., 2000). Others may reinforce the patient's efforts to cope with the situation and to reinterpret the situation so it seems less threatening (Thoits, 1986). In contrast, a lack of support may lead to the rumination of pessimistic thoughts, preoccupation with the disease, self-pity and, subsequently, to psychological distress (Aymanns et al., 1995; Sollner et al., 1999). Future research is needed to examine whether a lack of problem-focused support is detrimental for all cancer patients or mostly for certain subgroups of cancer patients, for instance, those at increased risk for cancer-related concerns and psychological distress such as younger cancer patients.

Cross-sectional relations of social support and self-esteem with depressive symptoms do not give us information about a possible causal direction between predictors and outcome. Our longitudinal analyses showed that persons who reported lower levels of social support (i.e. a greater lack of problem-focused emotional support and more negative interactions) experienced higher levels of depressive symptoms one year later, after adjusting for their initial level of depressive symptoms. This finding is consistent with other studies among cancer patients and demonstrates the importance of social support for the course of psychological functioning over time (Alferi et al., 2001; Grassi & Rosti, 1996). It has been suggested that, on the other hand, depressed people have a greater need and search for support, which may, ironically, turn others away and lead to an erosion of social support over time (Alferi et al., 2001; Moyer & Salovey, 1999). Thus, a lack

of social support may lead to a worsening of depressive symptoms and these symptoms may decrease one's social support resources.

An important issue in the context of social support is that social support may be a personality characteristic rather than a feature of the social environment (McColl et al., 1995; Winnubst et al., 1988). The degree of social support that a person has available is likely to be partly determined by personality factors, especially *neuroticism*. Neuroticism denotes the tendency to be emotionally unstable, to experience negative emotions, and to worry about things that could go wrong (Eysenck & Eysenck, 1991). Furthermore, persons scoring high on neuroticism seem to be less successful in the building, maintenance, and mobilisation of supportive relationships and perceive less support from others than emotional stable persons (Tempelaar et al., 1989; Winnubst et al., 1988). In the present study, we have not paid attention to the influence of neuroticism on social support. However, studies that have taken into account the effect of neuroticism found that a lack of emotional support still contributed independently to depressive symptoms, even when controlling for neuroticism (Krol, 1996). Thus it seems that personality characteristics such as neuroticism cannot fully explain the relationship between social support and depressive symptoms.

The self-esteem measure in the present study was *positively* formulated (e.g. "I feel positive about myself"). The discussion regarding the conceptual differences between positively and negatively formulated self-esteem (Brown et al., 1990a) is analogous to the discussion regarding differences between the positive and negative aspects of social relationships (Manne et al., 1997; Rook, 1984) and psychological well-being (Folkman, 1997; Russell & Carroll, 1999; Schroevers et al., 2000). As several researchers have recently urged, it is time to recognise that many psychosocial concepts may not be *one-dimensional* but rather *multi-dimensional*, measuring distinct concepts that may occur simultaneously (Andrews, 1998; Folkman, 1997; Manne et al., 1997; Manne et al., 1999). In order to better understand the conceptual differences between the positively and negatively formulated self-esteem, we repeated our regression analyses, this time using the *negatively* formulated self-esteem items (e.g. "I feel useless"). In general, the results of the regression analyses were similar to those using the positively formulated self-esteem. However, in contrast to positively formulated self-esteem, negatively formulated self-esteem appeared to be a significant predictor of depressive symptoms one year later, when controlling for the initial level of depressive symptoms. Perhaps, negative cognitions are more salient than positive cognitions in determining the level of depressive symptoms. According to Beck, especially negative self-perceptions makes a person more vulnerable to depressive symptoms (Beck, 1983). The examination of the correlations between negatively formulated self-esteem and social support revealed that, compared to positively formulated self-

esteem, negatively formulated self-esteem was stronger related to all three types of social support. All together, these findings demonstrate the importance of distinguishing positive and negative aspects of psychosocial concepts in future research.

It should be kept in mind that the majority of the patients and references were female, lower educated, and living with a partner. Moreover, the majority of the cancer patients were diagnosed with stage of 1 or 2, indicating a relatively good prognosis. Over time, patients with a worse prognosis and those with lower levels of social support were more likely to drop out. This might limit the generalizability of the present results. For instance, among patients with a poor prognosis, other processes could be at hand.

The present study has important methodological strengths and extends prior research among cancer patients in several ways. First, the associations among social support, self-esteem, and depressive symptoms were examined in a large group of cancer patients and references, both cross-sectional and longitudinal, at two fixed points in time after diagnosis. Second, the inclusion of both social support and self-esteem made it possible to examine their interrelationships and to take these interrelationships into account when examining their association with depressive symptoms. Third, both positive and negative aspects of social support were taken into account.

Overall, the results demonstrate that the supportive relationships and self-esteem play a crucial role in psychological well-being. The results also suggest that, at group level, a diagnosis of cancer does not deteriorate these psychosocial resources. Nevertheless, at an individual level, a diagnosis of cancer may have a great impact on the availability of psychosocial resources. Health care-providers may carefully monitor patients' psychosocial resources and changes herein in the weeks and months after diagnosis. By means of education or group discussions with other patients, patients and their partners may be given information about the benefits of sharing illness-related concerns and how to be more available and supportive. Patients may also be stimulated to focus on the positive aspects of themselves and their lives.

The enhancement of patients' own resources may help them to manage the physical and psychosocial consequences of the illness. Future research may investigate the role of other personal resources (e.g. coping styles, mastery, optimism, and meaning in life) in patients' adjustment to the cancer (Debats, 1996; Peterson, 2000; Stanton & Snider, 1993; Thompson & Collins, 1995; Vilhjalmsson, 1998). In addition, it has been hypothesised that unequal distributions of psychosocial resources by demographic factors may account for the observed demographic differences in psychological adjustment to cancer (Ridder, 1995; Schroevers et al., 2001a; Thoits, 1995). Although we generally found weak

correlations between the sociodemographic factors and the presence of resources, more research is needed to explore whether deficiencies in psychosocial resources can explain sociodemographic differences in psychological well-being and adjustment to cancer.