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## Spousal Support and Changes in Distress Over Time in Couples Coping With Cancer: The Role of Personal Control

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This longitudinal study has examined the associations between perceived supportive and unsupportive spousal behavior and changes in distress in couples coping with cancer. We tested whether people relatively low in their sense of personal control were more responsive to spousal supportive and unsupportive behavior than were people relatively high in personal control. Patients with colorectal cancer and their partners ( $n = 70$ ) completed questionnaires at two assessment points: 3 (at baseline) and 9 months (at follow-up) after the diagnosis. We assessed perceived spousal supportive (SSL) and unsupportive (SSL-N) behavior, sense of personal control (Pearlin & Schooler's Mastery), and depressive symptoms (CES-D) in both patients and partners. Multilevel analysis (MLwiN) was used to examine changes in distress over time in a dyadic context. Patients and partners who perceived more spousal support reported less distress over time, but this only applied to those relatively low in personal control. Moreover, partners who perceived more unsupportive spousal behavior reported more distress, again only if they were relatively low in personal control. Patients and partners relatively high in personal control reported relatively low levels of distress, regardless of spousal behavior. In conclusion, people relatively low in personal control may be more adversely affected by unsupportive behavior and benefit more from supportive behavior than people relatively high in personal control.

*Keywords:* spousal support, distress, personal control, cancer, longitudinal, dyadic coping, mastery

A cancer diagnosis can be stressful and upsetting for patients as well as their partners. More specifically, it has been shown that both members of a couple may be emotionally affected by a cancer diagnosis (Hagedoorn, Buunk, Kuijer, Wobbes, & Sanderman, 2000; Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008). Over time, however, most patients and partners adapt well (Hinnen, Ranchor,

Baas, Sanderman, & Hagedoorn, 2009). Social support has long been considered one of the most important factors in this adaptation process. For the most part, studies have, indeed, demonstrated a positive association between social support and well-being (e.g., Blaney et al., 1997; Demange et al., 2004; Helgeson & Cohen, 1996). Moreover, intimate partners are especially important sources of support. In fact, findings suggest that support from acquaintances cannot compensate for a lack of spousal support (Coyne & DeLongis, 1986). According to the developmental contextual coping model developed by Berg and Upchurch (2007), patients' appraisals of their illness and its consequences and their adjustment to this are influenced by their partners, and vice versa. Further, it has been recognized that, in couples dealing with cancer, both the patients and their partners should be considered as recipients as well as providers of support (Badr, Carmack, Kashy, Cristofanilli, & Revenson, 2010; Manne & Badr, 2008). Despite this understanding, to date, only a few empirical studies have addressed this issue on a dyadic level. More specifically, the majority of the studies have treated the patient as the focal person and the partner as a source of support (Berg & Upchurch, 2007). In the present study, we applied a dyadic approach by examining whether perceived spousal supportive and unsupportive be-

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havior<sup>1</sup> shortly after a cancer diagnosis would be associated with changes in distress over time in both patients and their partners.

Marital interactions may entail both supportive and unsupportive spousal behavior (e.g., Hagedoorn, Sanderman, Buunk, & Wobbles, 2002; Hinnen et al., 2009; Manne, 1999). It has been suggested that when investigating psychological outcomes among persons with cancer, researchers need to pay attention to the impact of unsupportive spousal behavior, rather than merely focusing on the positive aspect of social support (cf. Manne, Taylor, Dougherty, & Kemeny, 1997). Further, unsupportive spousal behavior has been found to have a greater impact than supportive spousal behavior on psychological distress in both healthy persons (Vinokur & Van Ryn, 1993) and in persons diagnosed with cancer (Manne et al., 1997). Therefore, we were interested in the associations between perceived supportive as well as unsupportive spousal behavior and changes in distress over time.

It is an oversimplification of reality to assume that if only partners were more supportive and helpful, couples' levels of distress would be alleviated. Some researchers have suggested that people may vary in terms of the extent to which they are able to benefit from having a supportive partner (e.g., Hinnen et al., 2009; Reich & Zautra, 1991). Therefore, one possible way to obtain greater insight into support processes is to take a closer look at the possible moderators of the support-distress association (cf. Frazier, Tix, & Barnett, 2003; Martire, Stephens, Druley, & Wojno, 2002; Pearlin, Menaghan, Lieberman, & Mullan, 1981; Reich & Zautra, 1991). Previous literature has suggested that individuals' sense of personal control or mastery<sup>2</sup> might be an important factor qualifying the support-distress association (e.g., Hinnen et al., 2009; VanderZee, Buunk, & Sanderman, 1997). Individuals' sense of personal control refers to the extent to which individuals believe that they are able to control or influence outcomes in their lives (Pearlin et al., 1981). Perceived personal control is neither just a dispositional characteristic nor only shaped by environmental factors (Peterson & Stunkard, 1989). It has been found to be relatively stable over time, but specific events either reinforce or weaken perceptions of control (Wolinsky, Wyrwich, Babu, Kroenke, & Tierney, 2003). For example, a cancer diagnosis may exert a temporary negative effect on personal control (Ranchor et al., 2010). Some researchers have integrated the construct of personal control into different stress models in order to explain individual differences in terms of distress when dealing with stressful events (e.g., Pearlin & Pioli, 2003). In addition, there are a considerable number of studies that have shown that individuals who feel more control over their lives are less at risk for stress and depression than individuals who feel that they have less control (e.g., Badger, 2001; Ben-Zur, 2002; Stiegelis et al., 2003; VanderZee et al., 1997).

It has been suggested that people relatively high in control possess more of the coping skills and abilities required to resolve difficult circumstances than those relatively low in control (Dalgard, Bjørk, & Tambs, 1995). For example, people relatively high in control were found to report more adaptive coping strategies, such as active coping (Ben-Zur,

2002; cf. Elfström & Kreuter, 2006; cf. Elliott, Trief, & Stein, 1986). Moreover, people relatively high in control may feel that they are able to resolve problems by themselves (cf. Rotter, 1966). Individuals relatively low in control, on the other hand, may feel rather powerless in terms of their ability to control outcomes by means of their own behavior and, therefore, may depend more on the support and help of their intimate partners. Indeed, it was found that people relatively low in control reported more use of coping strategies, such as social reliance (Elfström & Kreuter, 2006). As a consequence, people relatively low in control can be expected to be more responsive to spousal behavior when dealing with difficult circumstances.

The few studies that have investigated the moderating role of perceived personal control in the support-distress association presented cross-sectional findings among patients (Hinnen et al., 2009) and the general population (VanderZee et al., 1997), as well as longitudinal results in the context of negative life events in the general population (Dalgard et al., 1995). Their findings are consistent with our line of reasoning. For example, it was demonstrated that only among people relatively low in control did social support reduce the risk of developing depression when exposed to stressful events (Dalgard et al., 1995). In addition, based on the concept of person-environment fit, it has been suggested that incongruence between the social environment, such as spousal supportive behavior, and the individual's characteristics, such as sense of personal control, may result in negative outcomes (Martire et al., 2002). We argue that for individuals relatively low in control, perceptions of unsupportive spousal behavior do not fit with their needs and, therefore, may result in relatively high levels of distress. One study provided some support for this notion by showing that, in the short term, women with breast cancer who received more negative support (i.e., unnoticed protective buffering) from their partners reported more distress than did women who received less negative support from their partners, but only when they were relatively low in control (Hinnen et al., 2009).

To the best of our knowledge, our study is the first to examine the sense of personal control as a moderator in the support-distress association longitudinally among couples, considering both patients' and partners' perspectives as recipients of spousal support. Our aim was to examine whether individuals relatively low in control might be identified as a target subgroup that would benefit from supportive spousal behavior the most, but would also be the subgroup most adversely affected by unsupportive behavior. In

<sup>1</sup> In the current study, we were interested in how partners perceived their spouses' behavior. Thus, when we discuss supportive and unsupportive spousal behavior, we refer to the actual support behavior from the receivers' point of view.

<sup>2</sup> Several related constructs and associated measurements have been proposed to examine perceived sense of personal control, including Pearlin et al.'s (1981) Mastery scale and Rotter's (1966) Locus of Control scale. We used the first measure, but also cite relevant findings on external versus internal locus of control (cf. low vs. high sense of personal control).

practice, this knowledge may lead to more optimal referrals of couples for specific interventions focusing on spousal support.

We tested the following hypotheses with respect to changes in the level of distress over time, using multilevel analytic techniques that take the interdependency between patients and partners into account. Our approach is novel, in that we tested our hypotheses for both patients and partners, treating both members of the dyad as support providers as well as support receivers. We hypothesize that perceived spousal supportive behavior is negatively associated with future distress, especially for those relatively low in personal control (Hypothesis 1). Perceived spousal unsupportive behavior is hypothesized to be positively associated with future distress, especially for those relatively low in personal control (Hypothesis 2). Overall, individuals relatively high in control are expected to report relatively low levels of distress, regardless of their spouses' behavior.

## Method

### Procedure and Participants

The participants were patients newly diagnosed with colorectal cancer and their intimate partners, recruited from eight hospitals in the north of The Netherlands. These couples ( $n = 70$ ) took part in a longitudinal study on "couples' adaptation to cancer" and filled out questionnaires at two assessment points: approximately 3 (at baseline) and

9 months (at follow-up) after diagnosis (Hagedoorn et al., 2011). Couples received the baseline questionnaire after they gave their informed consent. The research procedures were approved by the Medical Ethical Committees of all hospitals involved.

Of 280 couples who met the eligibility criteria, which included being fluent in Dutch, having no documented hearing or cognitive impairments, and with informed consent given by both partners, 88 couples were willing to participate and went on to fill out the baseline questionnaire. We compared patients who declined participation with patients who participated and we found no gender,  $\chi^2(1, 260) = 1.08, p = .30$ , or age differences,  $t(236) = 1.82, p = .07$ . Follow-up data were available for 70 heterosexual couples. Table 1 presents the demographic characteristics of patients and partners. We compared couples who completed the follow-up assessment to those who were lost to follow-up and found no significant differences in any of the baseline variables under study.

### Measurements

*Demographic and medical characteristics* were retrieved from patients' medical files and from patients' and partners' own reports.

*Perceived spousal supportive behavior and unsupportive behavior* were measured at baseline with the two subscales of the Interaction of Social Support List (Kempen & Van

Table 1  
*Demographic and Medical Characteristics of Patients and Partners*

Variables	Patients				Partners			
	<i>M</i>	<i>(SD)</i>	<i>N</i>	<i>(%)</i>	<i>M</i>	<i>(SD)</i>	<i>N</i>	<i>(%)</i>
Married (years)	34	(13)	62	(87%)	34	(13)	62	(87%)
Age (years)	61.2	(10)			60.3	(10)		
Gender (male)			52	(74.3)			18	(25.7)
Morbidity			47	(67.1)			47	(67.1)
Level of education								
Elementary school			7	(10)			7	(10)
Secondary education			40	(57.1)			47	(67.1)
Higher education			23	(32.9)			16	(22.9)
Working status								
Paid job			27	(38.6)			21	(30)
Retired			27	(38.6)			17	(24.3)
Cancer diagnosis								
Rectal cancer			37	(52.8)				
Colon cancer			30	(42.9)				
Cancer stage								
Stage I			11	(15.5)				
Stage II			22	(31)				
Stage III			31	(43.7)				
Stage IV			2	(2.8)				
Treatment (at baseline)								
Surgery			45	(64.3)				
Colostomy			16	(22.9)				
Chemotherapy			7	(10)				
Preoperative radiotherapy			14	(20)				
Chemoradiation			4	(5.7)				
Treatment (at follow-up)								
Chemotherapy			1	(1.4)				
Radiotherapy			11	(15.7)				



Eijk, 1995; van Sonderen, 1993). Both partners were asked to indicate how often their partner engaged in supportive and unsupportive behavior toward them. The two subscales included four items for supportive behavior and seven items for unsupportive behavior. Examples of supportive items are: "Can you talk with your partner openly and share your feelings with him/her?" and "Does your partner give you daily practical support?" Unsupportive items followed the general format: "How often does your partner. . ." Examples of unsupportive items are: ". . .make disapproving remarks towards you?" and ". . .break an engagement with you?" and ". . .treat you unfairly?" The items were completed on a 4-point scale ranging from 1 (*rarely or never*) to 4 (*very often*). With respect to both measurements, the scores were averaged within subjects into a single index, with a higher score indicating a higher frequency of supportive and unsupportive behavior (for Cronbach's  $\alpha$  values, see Table 2).<sup>3</sup>

*Personal control* was assessed at baseline with the Seven-Item Mastery List (Pearlin et al., 1981), reflecting the perceived personal control over events and situations in life. The Mastery Scale is often used in the context of chronic illness as a predictor of adjustment. A sample item is: "Sometimes I feel that I am being pushed around in life." All items were completed on a 4-point scale ranging from 1 (*completely disagree*) to 5 (*completely agree*) (for Cronbach's  $\alpha$  values, see Table 2).

*Psychological distress* was assessed twice, approximately 3 (at baseline) and 9 months (at follow-up) after diagnosis, by using the Center for Epidemiologic Studies Depression Scale. The CES-D (Dutch translation by Bouma, Ranchor, Sanderman, & van Sonderen, 1995; Radloff, 1977) consists of 20 self-report items measuring the frequency of depressive symptoms, has good psychometric properties, and is widely used in studies of distress in cancer patients and their partners (for an overview, see a meta-analysis by Hagedoorn et al., 2008). All 20 items were completed on a 4-point scale ranging from 0 (*rarely or never*) to 3 (*almost always*). Examples are: "Last week, I felt afraid" and "Last week, I felt lonely." Item scores were summed within subjects into a single index, with a higher score indicating higher level of distress (for Cronbach's  $\alpha$  values, see Table 2).

### Statistical Analysis

Our data consist of two levels, namely, dyads at level 2 and individuals (i.e., patients and partners) nested within a dyad at level 1. To adequately analyze our data, we used MLwiN software (Rasbash, Charlton, Browne, & Healy, 2010). Before reading the files into MLwiN, we centered all the data around the sample mean and calculated interaction terms based on these centered variables (Aiken & West, 1991; cf. Kenny, Kashy, & Cook, 2006). In addition, we created two dummy variables, one for patients (1 = patient, 0 = partner) and one for partners (1 = partner, 0 = patient). Following the two-intercept approach (Kenny et al., 2006), we created two separate sets of predictor variables (one for patients and one for partners) by multiplying each level 1

predictor variable by the dummy coded variables. At level 1, the general intercept was removed and replaced with the dummy variables "patients" and "partners" (Kenny et al., 2006). This procedure with the dummy variables allowed us to estimate the within-person effects on patients and partners within one model while taking into account the non-independence of patient and partner data.

## Results

### Univariate and Bivariate Analysis

Table 2 presents the correlations and means for patients and partners for the variables under study. A higher sense of personal control was moderately associated with lower levels of distress for both patients and partners. The associations between patients' perceived supportive and unsupportive spousal behavior and distress were not significant, except for the rather weak positive association between unsupportive behavior and distress at follow-up. Partners' perceptions of supportive and unsupportive spousal behavior were moderately associated with distress, except for the association between supportive behavior and baseline distress. Furthermore, patients' perceptions of supportive and unsupportive spousal behavior were both moderately positively associated with partners' perceptions of spousal behavior. It can also be seen from the table that, on average, patients and partners score similarly on the different scales. Overall, there was a decrease in distress over time for patients, paired- $t(67) = 3.62, p = .001$ , and for partners, paired- $t(68) = 1.87, p = .066$ , albeit only approaching significance for the latter group.

### Testing the Hypotheses

To avoid overfitting the model, we created two separate models, one for supportive behavior and one for unsupportive behavior.<sup>4</sup> To test our first hypothesis, that is, perceived spousal supportive behavior would be negatively associated with future distress, especially for those relatively low in personal control, we created Model 1 (see Table 3). In this model, we included patients' and partners' perceptions of personal control, spousal supportive behavior, and the interaction terms as predictors of patients' and partners' distress at follow-up. We examined the associations between distress (at baseline and follow-up) and the demographic

<sup>3</sup> We have examined whether the reliability for patients' perceptions of spousal supportive behavior scale could be improved by dropping particular items, but found that this did not result in a notable change in the reliability of the scale.

<sup>4</sup> We have examined whether including marital satisfaction as a covariate in the model could change the result, but found that this did not lead to a notable change in the results. To avoid overfitting the model, we did not include marital satisfaction as a covariate in the final analyses presented here.

Table 2  
Pearson Correlations Between Patients and Partners, Means, and Standard Deviations for All the Variables in the Study

Variables	1	2	3	4	5	<i>M</i>	<i>SD</i>	$\alpha$
1. Personal control	<b>.19</b>	.11	-.24*	-.47**	-.36**	3.46	.75	.78
2. Perceived supportive behavior	.28*	<b>.25*</b>	-.37**	-.11	-.13	3.33	.47	.52
3. Perceived unsupportive behavior	-.18	-.52**	<b>.31*</b>	.17	.26*	1.42	.40	.67
4. Distress (at baseline)	-.29*	-.11	.32**	<b>.05</b>	.60**	13.29	9.23	.87
5. Distress (at follow-up)	-.31**	-.24*	.35**	.59**	<b>.22</b>	9.92	7.98	.86
<i>M</i>	3.50	3.32	1.41	12.82	11.01			
<i>SD</i>	.65	.53	.32	8.66	8.90			
$\alpha$	.73	.83	.74	.88	.91			

Note. Patient statistics are presented above the diagonal and partner statistics below the diagonal. Correlations between patient and partner variables are presented on the diagonal. The numbers in bold represent the diagonal.

\*  $p < .05$ . \*\*  $p < .01$ .

and medical variables listed in Table 1.<sup>5</sup> Except for gender and morbidity,<sup>6</sup> none of these variables showed a significant correlation with distress. Therefore, only gender and morbidity were included as covariates in the final model. Because we were interested in changes in distress over time, we also controlled for the baseline level of distress. Model 1 can be specified in the following function:  $Y_{ij} = \beta_{0j}(\text{Patient}) + \beta_{0j}(\text{Partner}) + \beta_1(\text{Patient Baseline Distress})_j + \beta_1(\text{Partner Baseline Distress})_j + \beta_2(\text{Patient Gender})_j + \beta_2(\text{Partner Gender})_j + \beta_3(\text{Patient Morbidity})_j + \beta_3(\text{Partner Morbidity})_j + \beta_4(\text{Patient Perceived Supportive Behavior})_j + \beta_4(\text{Partner Perceived Supportive Behavior})_j + \beta_5(\text{Patient Personal Control})_j + \beta_5(\text{Partner Personal Control})_j + \beta_6(\text{Patient Perceived Supportive Behavior} \times \text{Personal Control})_j + \beta_6(\text{Partner Perceived Supportive Behavior} \times \text{Personal Control})_j + e_{ij}$ , where  $Y_{ij}$  is distress at follow-up of a member of Couple  $j$ .

As can be seen in Table 3, for both patients and partners, the interaction between perceived spousal supportive behavior and personal control at baseline predicted follow-up distress. We calculated and plotted the regression slopes for patients and partners at two levels of personal control: high (+1 *SD*) and low (-1 *SD*). Figure 1 depicts the results for partners. The negative association between perceived spousal supportive behavior and follow-up distress was significant in partners relatively low in control ( $B = -5.671$ ,  $p < .05$ ), but not in partners relatively high in control ( $B = 2.787$ ,  $p = .32$ ). Similar findings were observed for patients (see Figure 2). Perceived spousal supportive behavior was negatively associated with follow-up distress, but only for patients relatively low in control ( $B = -5.206$ ,  $p < .05$ ). The association was not significant for patients relatively high in control ( $B = 2.795$ ,  $p = .20$ ).

To test our second hypothesis, that is, that perceived spousal unsupportive behavior would be positively associated with future distress, especially for those relatively low in personal control, we created Model 2 (see Table 4). In this model, we replaced perceived spousal supportive with perceived spousal unsupportive behavior. Again, patients' and partners' gender, morbidity, and baseline distress were included in the model as covariates. Table 4 shows an interactive effect for spousal unsupportive behavior and personal control on follow-up distress, but only for partners.

As depicted in Figure 3, perceived spousal unsupportive behavior was positively associated only with partners' distress at follow-up and only for partners relatively low in control ( $B = 10.38$ ,  $p < .001$ ). The association was not significant for partners relatively high in control ( $B = .29$ ,  $p = .93$ ).

## Discussion

The aim of this prospective study was to expand our knowledge of spousal support and the course of distress over time, both for patients with colorectal cancer and their partners. Overall, our findings suggest that people relatively low in control are more responsive to perceived spousal behavior than people relatively high in control. More specifically, our findings provide consistent support for the first hypothesis by showing that persons who perceived more spousal supportive behavior reported less distress over time, especially those relatively low in control. Our second hypothesis was supported only for partners. That is, partners' perceptions of patients' unsupportive behavior was associated with more distress over time, but only for partners relatively low in control. This suggests that both patients and partners relatively low in control may benefit more from supportive spousal behavior, and partners relatively low in control may even be harmed by unsupportive spousal behavior.

Put differently, our findings demonstrated that people relatively high in control showed relatively low levels of

<sup>5</sup> To evaluate the associations between distress and demographic and medical variables, we used zero-order correlations (for years married and age), Spearman rank-order correlations (for level of education and cancer stage), and  $t$  tests (for gender, morbidity, working status, cancer diagnosis, and whether or not they were undergoing treatment at baseline and follow-up).

<sup>6</sup> To assess morbidity, patients and partners were asked to indicate whether they had health complaints or not on a checklist of 26 chronic medical conditions. For patients, morbidity was coded as present if patients indicated they had health complaints for at least one medical condition other than cancer. For partners, morbidity was coded as present if partners indicated they had at least one chronic medical condition.

Table 3  
*Hierarchical Linear Model 1: Associations Between Supportive Behavior and Distress at Follow-Up*

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>r</i>	<i>p</i>
Patient distress (at follow-up)					
Intercept patient	10.27	1.02	10.06	.68	<.001
Distress (at baseline)	.46	.10	4.81	.41	<.001
Gender	-.02	.90	-.02	.00	.98
Morbidity	-2.25	1.65	-1.36	.13	.17
Perceived spousal supportive behavior (PSSB)	-1.21	1.60	-.75	.07	.45
Personal control	-1.01	1.18	-.86	.08	.39
PSSB × personal control	5.81	2.43	2.40	.22	<.05
Partner distress (at follow-up)					
Intercept partner	10.96	1.12	9.76	.67	<.001
Distress (at baseline)	.52	.10	5.41	.45	<.001
Gender	-.54	.94	-.58	.05	.56
Morbidity	-1.85	1.72	-1.07	.10	.28
Perceived spousal supportive behavior (PSSB)	-1.44	1.55	-.93	.08	.35
Personal control	-.95	1.26	-.76	.07	.45
PSSB × personal control	6.80	1.92	3.55	.31	<.001

Note. Effect size *r* for each *t* was computed with the following equation:  $r = \sqrt{t^2/(t^2 + df)}$ . *df* = 115.

distress, regardless of their perceptions of their spouses' behavior. This is in line with the argument that people relatively high in control feel they can control their life by their own behavior (cf. Rotter, 1966), most probably because they possess coping skills required for their adaptation (Elfström & Kreuter, 2006). For example, it has been found that people relatively high in control use more adaptive coping strategies (i.e., assimilation strategies) than people relatively low in control (Ben-Zur, 2002; Elfström & Kreuter, 2006; Elliott et al., 1986; Henselmans et al., 2010; Jopp & Schmitt, 2010). As a consequence, people relatively high in control may benefit less from a supportive spouse than people relatively low in control who depend on others to deal with stressful events (cf. Dalgard et al., 1995; cf. VanderZee et al., 1997). In the current study, we did not measure the specific coping skills and abilities required for better adjustment to cancer that people relatively high in control are thought to possess and that people relatively low in control are deficient in. A promising avenue for future studies to provide further insight into the possible underlying

mechanisms might be to focus on such skills and abilities and to test a mediated moderation model (cf. Preacher, Rucker, & Hayes, 2007); that is, a model in which the interactive effect of perceived supportive and unsupportive spousal behavior and personal control on distress are explained by coping skills.

Our findings with respect to unsupportive spousal behavior suggest that, for partners relatively low in control, perceiving criticism or antagonism from patients is distressing. However, for patients relatively low in control, perceiving such unsupportive spousal behavior does not seem to be harmful. This different finding for patients and partners might be related to the care-giving role. Perhaps for partners relatively low in control, perceiving unsupportive behavior from the patients indicates that they are failing as caregivers and, therefore, may elevate their distress. This is in line with the suggestion that receiving negative support might intensify caregivers' negative feelings, such as fear or self-blame (Rauktis, Koeske, & Tereshko, 1995). Partners may feel more obliged to support patients than the other way around,

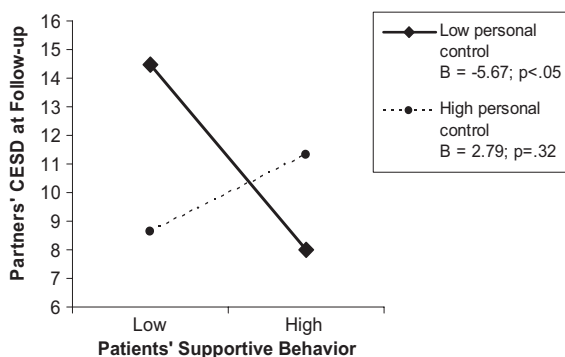


Figure 1. Interaction between perception of patients' supportive behavior and partners' distress over time, moderated by partners' personal control.

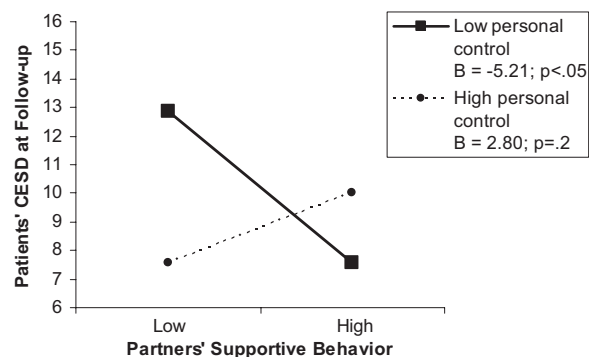


Figure 2. Interaction between perception of partners' supportive behavior and patients' distress over time, moderated by patients' personal control.

Table 4  
*Hierarchical Linear Model 2: Associations Between Unsupportive Behavior and Distress at Follow-Up*

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>r</i>	<i>p</i>
Patient distress (at follow-up)					
Intercept patient	10.52	1.07	9.88	.68	< .001
Gender	-.16	.94	-.17	.02	.86
Morbidity	-2.14	1.71	-1.26	.12	.21
Distress (at baseline)	.44	.10	4.53	.39	< .001
Perceived spousal unsupportive behavior (PSUB)	2.61	2.04	1.28	.12	.20
Personal control	-.75	1.24	-.60	.06	.55
PSUB × ersonal control	.44	2.58	.17	.02	.86
Partner distress (at follow-up)					
Intercept partner	10.68	1.23	8.72	.63	< .001
Distress (at baseline)	.42	.11	3.93	.34	< .001
Perceived spousal unsupportive behavior (PSUB)	5.34	2.67	2.00	.18	< .05
Personal control	-1.18	1.28	-.92	.09	.36
Morbidity	-1.32	1.80	-.73	.07	.46
Gender	-1.49	1.05	-1.43	.13	.15
PSUB × personal control	-8.11	3.28	-2.47	.22	< .05

Note. Effect size *r* for each *t* was computed with the following equation:  $r = \sqrt{t^2/(t^2 + df)}$ . *df* = 115.

and, consequently, perceiving unsupportive spousal behavior might harm partners more than patients. Further, it was found that feelings of insecurity and incompetence with respect to their care-giving role were associated with female caregivers' own levels of distress (cf. Hagedoorn et al., 2002; Martire, Stephens, & Townsend, 1998). Future studies are needed to replicate these results and examine our explanation by focusing more on the unique role characteristics of patients versus partners.

Our findings are not only consistent with the results of the few previous studies on personal control as a moderator of the social support-distress link carried out in the general population (e.g., Dalgard et al., 1995; VanderZee et al., 1997), but also with the results of previous research that examined peoples' vulnerability as a moderator of the spousal support-distress association. For example, previous studies have shown that vulnerable patients (in terms of a weak promotion focus, or poor psychological and physical condition) may benefit more from supportive partners, whereas they may be harmed more by unsupportive partners (cf.

Hagedoorn et al., 2000; cf. Schokker, Links, Luttk, & Hagedoorn, 2010). The current study contributes to the existing literature by showing that the associations between perceived spousal supportive and unsupportive behavior and distress are qualified by personal control. This is an important step toward answering the question, For whom does the receipt of supportive and absence of unsupportive behavior from their intimate partner increase psychological well-being? Importantly, we have also contributed to the dyadic literature of couples coping with illness by demonstrating that perceived spousal behavior is not only associated with distress in patients, but also with distress in partners.

The current study has several noteworthy strengths. First, our study made use of a dyadic approach, in which we (a) regarded both patients and partners as a source of support and (b) examined in one model both patients' and partners' distress as a function of spousal behavior. Taking into account the interdependency between patients and partners, we made use of a sophisticated statistical technique (MLwiN; Kenny et al., 2006). In addition, we applied a longitudinal design that allowed us to predict follow-up distress while controlling for the level of distress at baseline. Even though we cannot draw causal conclusions, an association between baseline support and changes in distress over time, depending on personal control, provides much more insight into the support process than a simple cross-sectional association.

As to the interpretation of the findings, a number of limitations should also be noted. First, we had a relatively low response rate. This may have biased our sample toward couples who showed less distress at baseline. However, *de facto*, the levels of distress in the current sample were higher than the levels that were found in a previous study among a different sample of couples coping with colorectal cancer (Tuinstra et al., 2004). A second limitation of the current study is the relatively low reliability of the supportive spousal behavior questionnaire (SSL) for patients. This should be improved in future studies. Third, we have only

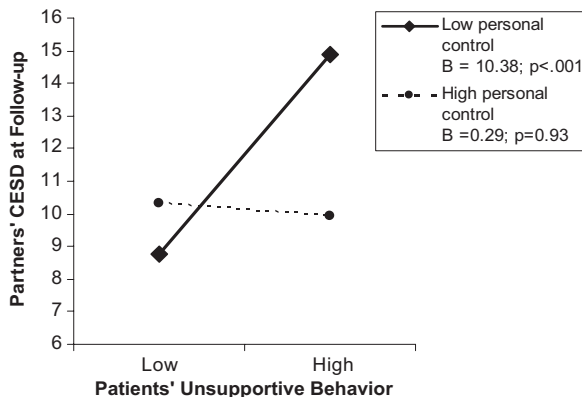


Figure 3. Interaction between perception of patients' unsupportive behavior and partners' distress over time, moderated by partners' personal control.



evaluated perceived behavior; thus, we measured neither patients' nor partners' actual behavior. However, it is plausible to assume that perceived spousal behavior is based, at least to some extent, on actual behavior. Previous studies have supported this notion by showing a moderate agreement within couples with respect to the way spousal support was provided (Hagedoorn et al., 2000; Kuijer et al., 2000). A fourth related issue is that although we adopted a dyadic perspective, this perspective is restricted to the effect of each spouse's perception of the other's behavior on his or her own distress levels (i.e., actor effect). Also, this approach may have introduced same-method variance, in a sense that a relatively high personal-control perception may underlie the reporting of receiving support, or vice versa. A cross-partner effect design could have overcome this limitation. Therefore, we encourage future studies to include the providers' perceptions of supportive behavior and also examine, on a dyadic level, the interaction between the partner effect of support provision and the actor effect of personal control.

Our findings may have some clinical implications. We would recommend that interventions reflect the important role of patients as providers of support to their intimate partners and not only as receivers of support. Additionally, patients (or partners in general) should be encouraged not only to pay attention to the amount of positive support they provide to their spouse, but also to the amount of disapproval, hostility, enmity, and other unsupportive behavior they engage in. In this respect, interventions for couples dealing with cancer that target the exchange of support within couples appear to be promising in reducing distress (Kuijer, Buunk, De Jong, Ybema, & Sanderman, 2004). Couples with at least one partner relatively low in control might be especially good candidates for such couple interventions.

## References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications, Inc.
- Badger, T. A. (2001). Depression, psychological resources, and health-related quality of life. *Journal of Clinical Geropsychology*, 7, 189–200. doi:10.1023/A:1011339111515
- Badr, H., Carmack, C. L., Kashy, D. A., Cristofanilli, M., & Revenson, T. A. (2010). Dyadic coping in metastatic breast cancer. *Health Psychology*, 29, 169–180. doi:10.1037/a0018165
- Ben-Zur, H. (2002). Coping, affect, and aging: The roles of mastery and self-esteem. *Personality and Individual Differences*, 32, 357–372. doi:10.1016/S0191-8869(01)00031-9
- Berg, C. A., & Upchurch, R. (2007). A developmental-contextual model of couples coping with chronic illness across the adult life span. *Psychological Bulletin*, 133, 920–954. doi:10.1037/0033-2909.133.6.920
- Blaney, N. T., Goodkin, K., Feaster, D., Morgan, R., Millon, C., Szapocznik, J., & Eisdorfer, C. A. (1997). A psychosocial model of distress over time in early HIV-1 infection: The role of life stressors, social support, and coping. *Psychology & Health*, 12, 633–653. doi:10.1080/08870449708407411
- Bouma, J., Ranchor, A. V., Sanderman, R., & van Sonderen, E. (1995). *Het meten van symptomen van depressie met de CES-D* [The measurement of symptoms of depression with the CES-D]. Groningen: Northern Center for Healthcare Research, University of Groningen, The Netherlands
- Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: The role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology*, 54, 454–460. doi:10.1037/0022-006X.54.4.454
- Dalgard, O. S., Bjørk, S., & Tambs, K. (1995). Social support, negative life events, and mental health. *British Journal of Psychiatry*, 166, 29–34. doi:10.1192/bjp.166.1.29
- Demange, V., Guillemin, F., Baumann, M., Suurmeijer, T. P. B. M., Moum, T., Doeglas, D., . . . van den Heuvel, W. J. (2004). Are there more than cross-sectional relationships of social support and support networks with functional limitations and psychological distress in early rheumatoid arthritis? The European research on incapacitating diseases and social support longitudinal study. *Arthritis & Rheumatism: Arthritis Care & Research*, 51, 782–791. doi:10.1002/art.20694
- Elfström, M. L., & Kreuter, M. (2006). Relationships between locus of control, coping strategies, and emotional well-being in persons with spinal cord. *Journal of Clinical Psychology in Medical Settings*, 13, 93–103.
- Elliott, D. J., Trief, P. M., & Stein, N. (1986). Mastery, stress, and coping in marriage among chronic pain patients. *Journal of Behavioral Medicine*, 9, 549–558. doi:10.1007/BF00845284
- Frazier, P. A., Tix, A. P., & Barnett, C. L. (2003). The relational context of social support: Relationship satisfaction moderates the relations between enacted support and distress. *Personality and Social Psychology Bulletin*, 29, 1133–1146. doi:10.1177/0146167203254545
- Hagedoorn, M., Buunk, B. P., Kuijer, R. G., Wobbes, T., & Sanderman, R. (2000). Couples dealing with cancer: Role and gender differences regarding psychological distress and quality of life. *Psycho-Oncology*, 9, 232–242. doi:10.1002/1099-1611(200005/06)9:3<232::AID-PON458>3.0.CO;2-J
- Hagedoorn, M., Dagan, M., Puterman, E., Hoff, C., Meijerink, W. J., DeLongis, A., & Sanderman, R. (2011, January 11). Relationship satisfaction in couples confronted with colorectal cancer: The interplay of past and current spousal support. *Journal of Behavioral Medicine* [Epub ahead of print]. doi:10.1007/s10865-010-9311-7
- Hagedoorn, M., Kuijer, R. G., Buunk, B. P., DeJong, G. M., Wobbes, T., & Sanderman, R. (2000). Marital satisfaction in patients with cancer: Does support from intimate partners benefit those who need it most? *Health Psychology*, 19, 274–282. doi:10.1037/0278-6133.19.3.274
- Hagedoorn, M., Sanderman, R., Bolks, H. N., Tuinstra, J., & Coyne, J. C. (2008). Distress in couples coping with cancer: A meta-analysis and critical review of role and gender effects. *Psychological Bulletin*, 134, 1–30. doi:10.1037/0033-2909.134.1.1
- Hagedoorn, M., Sanderman, R., Buunk, B. P., & Wobbes, T. (2002). Failing in spousal caregiving: The “identity-relevant stress” hypothesis to explain sex differences in caregiver distress. *British Journal of Health Psychology*, 7, 481–494. doi:10.1348/135910702320645435
- Helgeson, V. S., & Cohen, S. (1996). Social support and adjustment to cancer: Reconciling descriptive, correlational, and intervention research. *Health Psychology*, 15, 135–148. doi:10.1037/0278-6133.15.2.135
- Henselmans, I., Fleer, J., de Vries, J., Baas, P. C., Sanderman, R., & Ranchor, A. V. (2010). The adaptive effect of personal control when facing breast cancer: Cognitive and behavioural mediators. *Psychology & Health*, 25, 1023–1040.
- Hinnen, C., Ranchor, A. V., Baas, P. C., Sanderman, R., & Hagedoorn, M. T. (2009). Partner support and distress in women

- with breast cancer: The role of patient awareness of support and level of mastery. *Psychology & Health*, 24, 439–455. doi:10.1080/08870440801919513
- Jopp, D. S., & Schmitt, M. (2010). Dealing with negative life events: Differential effects of personal resources, coping strategies, and control beliefs. *European Journal of Ageing*, 7, 167–180. doi:10.1007/s10433-010-0160-6
- Kempen, G. I. J. M., & Van Eijk, L. M. (1995). The psychometric properties of the SSL12-I, a short scale for measuring social support in the elderly. *Social Indicators Research*, 35, 303–312. doi:10.1007/BF01079163
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis* (methodology in the social sciences). New York: Guilford.
- Kuijjer, R. G., Buunk, B. P., De Jong, G. M., Ybema, J. F., & Sanderman, R. (2004). Effects of a brief intervention program for patients with cancer and their partners on feelings of inequity, relationship quality, and psychological distress. *Psycho-Oncology*, 13, 321–334. doi:10.1002/pon.749
- Kuijjer, R. G., Ybema, J. F., Buunk, B. P., De Jong, G. M., Thijs-Boer, F., & Sanderman, R. (2000). Active engagement, protective buffering, and overprotection: Three ways of giving support by intimate partners of patients with cancer. *Journal of Social & Clinical Psychology*, 19, 256–275.
- Manne, S., & Badr, H. (2008). Intimacy and relationship processes in couples' psychosocial adaptation to cancer. *Cancer*, 112, 2541–2555. doi:10.1002/cncr.23450
- Manne, S. L. (1999). Intrusive thoughts and psychological distress among cancer patients: The role of spouse avoidance and criticism. *Journal of Consulting and Clinical Psychology*, 67, 539–546. doi:10.1037/0022-006X.67.4.539
- Manne, S. L., Taylor, K. L., Dougherty, J., & Kemeny, N. (1997). Supportive and negative responses in the partner relationship: Their association with psychological adjustment among individuals with cancer. *Journal of Behavioral Medicine*, 20, 101–125. doi:10.1023/A:1025574626454
- Martire, L. M., Stephens, M. A. P., Druley, J. A., & Wojno, W. C. (2002). Negative reactions to received spousal care: Predictors and consequences of miscarried support. *Health Psychology*, 21, 167–176. doi:10.1037/0278-6133.21.2.167
- Martire, L. M., Stephens, M. A. P., & Townsend, A. L. (1998). Emotional support and well-being of midlife women: Role-specific mastery as a mediational mechanism. *Psychology and Aging*, 13, 396–404. doi:10.1037/0882-7974.13.3.396
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, 22, 337–356. doi:10.2307/2136676
- Pearlin, L. I., & Pioli, M. F. (2003). Personal control: Some conceptual turf and future directions. In S. H. Zarit, L. I. Pearlin, K. W. Schaie, S. H. Zarit, L. I. Pearlin, & K. W. Schaie (Eds.), *Personal control in social and life course contexts (societal impact on aging)* (pp. 1–21). New York: Springer.
- Peterson, C., & Stunkard, A. J. (1989). Personal control and health promotion. *Social Science & Medicine*, 28, 819–828. doi:10.1016/0277-9536(89)90111-1
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185–227.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385–401. doi:10.1177/014662167700100306
- Ranchor, A. V., Wardle, J., Steptoe, A., Henselmans, I., Ormel, J., & Sanderman, R. (2010). The adaptive role of perceived control before and after cancer diagnosis: A prospective study. *Social Science & Medicine*, 70, 1825–1831. doi:10.1016/j.socscimed.2009.10.069
- Rasbash, J., Charlton, C., Browne, W. J., & Healy, M. (2010). MLwiN version 2.16. Center for Multilevel Modeling, University of Bristol.
- Rauktis, M. E., Koeske, G. F., & Tereshko, O. (1995). Negative social interactions, distress, and depression among those caring for a seriously and persistently mentally ill relative. *American Journal of Community Psychology*, 23, 279–299. doi:10.1007/BF02506939
- Reich, J. W., & Zautra, A. J. (1991). Experimental and measurement approaches to internal control in at-risk older adults. *Journal of Social Issues*, 47, 143–158. doi:10.1111/j.1540-4560.1991.tb01839.x
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General & Applied*, 80, 1–28.
- Schokker, M. C., Links, T. P., Luttk, M. L., & Hagedoorn, M. T. (2010). The association between regulatory focus and distress in patients with a chronic disease: The moderating role of partner support. *British Journal of Health Psychology*, 15, 63–78. doi:10.1348/135910709X429091
- Stiegelis, H. E., Hagedoorn, M. T., Sanderman, R., van der Zee, K. I., Buunk, B. P., & van den Bergh, A. C. M. (2003). Cognitive adaptation: A comparison of cancer patients and healthy references. *British Journal of Health Psychology*, 8, 303–318. doi:10.1348/135910703322370879
- Tuinstra, J., Hagedoorn, M. T., van Sonderen, E., Ranchor, A. V., Van den Bos, G. A. M., Nijboer, C., & Sanderman, R. (2004). Psychological distress in couples dealing with colorectal cancer: Gender and role differences and intracouple correspondence. *British Journal of Health Psychology*, 9, 465–478. doi:10.1348/1359107042304588
- VanderZee, K. I., Buunk, B. P., & Sanderman, R. (1997). Social support, locus of control, and psychological well-being. *Journal of Applied Social Psychology*, 27, 1842–1859. doi:10.1111/j.1559-1816.1997.tb01628.x
- van Sonderen, E. (1993). *Het meten van sociale steun met de Sociale Steun Lijst-Interacties (SSL-I) en Sociale Steun Lijst-Discrepancies (SSL-D): Een handleiding* [The measurement of social support with the Social Support List-Interactions (SSL-I) and Social Support List-Discrepancies (SSL-D): A manual] Northern Center for Healthcare Research, University of Groningen, The Netherlands.
- Vinokur, A. D., & Van Ryn, M. (1993). Social support and undermining in close relationships: Their independent effects on the mental health of unemployed persons. *Journal of Personality and Social Psychology*, 65, 350–359. doi:10.1037/0022-3514.65.2.350
- Wolinsky, F. D., Wyrwich, K. W., Babu, A. N., Kroenke, K., & Tierney, W. M. (2003). Age, aging, and the sense of control among older adults: A longitudinal reconsideration. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 58B, S212–S220.

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