

Matched and Mismatched Cognitive Appraisals in Patients with Breast Cancer and their  
Partners: Implications for Psychological Distress

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## Abstract

The present study sought to **identify** couples' cognitive appraisals of breast cancer and the extent to which matched or *mismatched* appraisals within a couple contribute to distress. Women with breast cancer (n = 57) and their partners completed the Cognitive Appraisals of Health Scale along with two self-report measures of distress, the Profile of Mood States and the Impact of Events Scale. Four groups were created based on their cognitive appraisals. Couples where both patient and partner scored highest on challenge or benign appraisals formed the positive outlook group (P+S+); when both scored highest on threat or harm/loss they formed the negative outlook group (P-S-). In the mismatched groups the patient had a positive outlook and their partner had a negative outlook (P+S-), or vice versa (P-S+). In general, lower distress was related to participants' own positive outlook. Higher distress for patients was found in the matched group P-S-; for partners it was found in the mismatched group P+S-. These findings suggest partner effects for both patients and partners. When the patient had a negative outlook, a partner negative outlook was associated with the highest psychological distress. When the partner had a negative outlook, a patient positive outlook was associated with the highest psychological distress. There are several possible explanations for these findings, each with different implications for clinical practice. Future research with different groups of cancer patients and longitudinal, mixed methods designs may clarify their meaning.

Keywords: cognitive appraisals, breast cancer couples, distress, partner effects

## Match and Mismatch of Cognitive Appraisals in Patients with Breast Cancer and their Partners: Implications for Psychological Distress

Whether examined across time or compared to healthy individuals, a significant minority of women with breast cancer experience psychological distress as they receive the diagnosis of breast cancer 40% [1], go through treatment 26.3%[1]; 34% [2]; 45% [3], and live as survivors 42% [3]. Although recurrent disease is generally associated with increased psychological distress [4][5], disease stage, type of surgery and adjuvant treatment seem to be unrelated to level of psychological distress [6][3][7][8]. The findings that a large proportion of women experience psychological distress during this time is of concern for a number of reasons, especially because of the relationship between high depression and increased mortality in breast cancer patients [9] and the impact of psychosocial variables on overall quality of life [10].

Fewer studies have examined the effects of breast cancer on those closest to the patient. The studies conducted with husbands or partners show psychological disturbance among these men [11]. Although many partners adjust well to the cancer experience, Compas and colleagues [12] found that more spouses scored in the clinical range on anxiety and depression than would be expected in the general population. These findings are supported by other researchers as well [13][14]. Additionally, in a review of the literature, Blanchard and colleagues estimated that 20% to 30% of spouses of cancer patients “suffer from mood disturbance and psychological impairment” [15].

The statistics on psychological distress in cancer patients and their partners point to the scope of the problem, and justify the need to focus on distress in these couples. In order to

develop useful interventions to decrease or prevent distress, a better understanding of factors that promote psychological dysfunction or adaptation need to be understood.

Lazarus and Folkman [16] proposed the transactional theory of stress to explain how stressful situations may lead to adverse health outcomes in some individuals but not in others. In this theory stress leads to appraisals which elicit coping responses. The type of appraisal the individual makes and the coping response that results determine the impact of stress. Appraisal is a process whereby individuals ‘categorize’ stressful situations as threats to their well-being or not [16]; and is much less studied than coping, the other major construct in this model.

A breast cancer diagnosis typically elicits appraisals of threat for patients [2] and their partners [17], which are associated with distress. For example, Gallagher and colleagues [2] found that among patients, appraisals made at 2 months post-diagnosis predicted 40% of the variance in psychological distress at 6 months post-diagnosis. Women who perceived the breast cancer as more of a threat reported more psychological distress.

When examining couples, however, it is important to investigate whether there are partner effects, i.e. whether the variables in the patient impact the partner, and vice-versa. Hannum and colleagues [18], examining psychological distress in patients only, concluded that the distress of the patients was more strongly associated with partners variables than their own variables [18]. Northouse and colleagues [19] sampled 56 patients with colorectal cancer and their spouses. They conceptualized appraisals as hopelessness and uncertainty. In patients, they found that their own uncertainty and hopelessness predicted role adjustment problems; in spouses, only their own uncertainty served as a predictor. They did not find partner effects for either. In a subsequent study, Northouse and colleagues [17] surveyed 189 patients with

recurrent breast cancer and their caregivers using the Appraisal of Illness Scale and the Appraisal of Caregiving Scale. Higher scores on both represented worse appraisals, and were found to impact quality of life for each. In this study, no partner effects of appraisals were found.

Thus, existing literature that examines appraisals and their role for breast cancer patients and their partners is limited and inconclusive. Furthermore, there is a great deal of variability in the definition and measurement of appraisal, which causes difficulties in correctly conceptualizing the role and impact of appraisals on individuals and their partners.

Therefore in the present study we sought to **identify** couples' cognitive appraisals of breast cancer and the extent to which matched or *mismatched* appraisals within a couple contribute to distress. We followed Lazarus and Folkman's [16] definition of appraisals and used a measure that distinguished among the four types of appraisals that these authors defined (benign, challenge, harm/loss, and threat). From a dyadic viewpoint, we expected to find partner effects; i.e. we expected that the appraisals in one would impact the distress in the other. However, we used a novel approach to examine these partner effects and determined that match and mismatch in appraisals would be related to different levels of distress. Based on the findings that threat appraisals are associated with psychological distress, we hypothesized specific partner effects as follows: 1) couples where both individuals appraised the cancer as either a threat or as harm/loss (negative outlook; P-S-) would have more distress than couples where both appraised the cancer as a challenge or as benign (positive outlook; P+S+); and 2) because of the paucity of research in the area, and the fact that this is the first study to match appraisals in couples, we did not determine any specific hypothesis for couples mismatched on appraisals, but hypothesized that there would be differences. Because in mismatched couples patients and partners are

appraising the cancer differently, they may experience tension, which may lead to psychological distress.

## Method

### Participants & Procedures

Patients were approached by research assistants present during their appointment, as part of an established recruitment system used for behavioral research at the cancer center. Criteria for eligibility included a) a breast cancer diagnosis, b) current chemotherapy or biological treatment, c) married or in a stable, romantic live-in relationship, d) a partner willing to participate in the study, and e) the ability to read and write in English. Patients who met all of the criteria were given information about the study and instructed to consult with their partner about joint participation. In most cases, the partner was present during the appointment and consented along with the patient. Otherwise, the research assistant obtained the name of the patient and the couple's contact information. As a next step, the oncologist confirmed that the patient met eligibility criteria and that she was able to participate from a medical standpoint. When approval was received from the oncologist, the research assistant contacted the couple by phone to confirm the interest of both in participating. Couples who agreed to participate were mailed survey packets with self-addressed, stamped envelopes to mail back upon completion.

Participants were asked to complete the packets individually and not discuss questions or answers until both members of the dyad had returned the questionnaires in separate envelopes.

Each assessment took approximately 60 minutes to complete. Participants who failed to return their packets within 2 weeks received reminder phone calls by research assistants. Research

assistants reviewed all returned surveys for missing data and called participants within 3 days of arrival of packet to collect missing data. Once surveys were returned, participants were paid \$30

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dollars for their individual participation. These procedures were approved by the cancer center's Scientific Review Committee and the University's Institutional Review Board.

### Measures

All measures were administered to both patients and partners. Scales were adapted to refer to "your cancer" or "your partner's cancer" depending on the individual assessed.

Demographic characteristics. A demographic questionnaire measuring age (in years), annual income, highest level of education completed, employment status, time married to **partner** (in months), and view of current health (1 = "poor" to 5 "excellent") was developed specifically for the study.

Disease and treatment variables. Disease status (i.e. stage, lymph node involvement, and recurrent or original diagnosis) and treatment variables (i.e. surgery type, radiation, type of chemotherapy and/or biological treatment(s), number of treatment rounds, treatment dates, and treatment side-effects) were obtained from a review of the patients medical chart conducted after the receipt of both the patient and partner data packages with the signed HIPAA informed consent. Data on stage, recurrence, and treatments was also collected from patients. Data from patients is being presented here as 1) it was more complete than chart data, and 2) it compared favorably with chart data when both were available.

Cognitive Appraisals. The Cognitive Appraisal of Health Scale (CAHS)[20] was used to assess the primary appraisals of threat, harm/loss, challenge, and benign with regards to the breast cancer. Respondents were asked to indicate their agreement with each statement on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) across 28 items. Participants were categorized into one appraisal group, depending on which appraisal they score highest.

Reliability estimates for this scale range from  $\alpha = .76$  to  $\alpha = .88$  [20].

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Psychological Distress. We used two different instruments to measure psychological distress, the Profile of Mood States (POMS) which yields a total distress score and the Impact of Events Scale (IES) which yields a subscale score for Avoidance and one for Intrusion.

The POMS [21] was used to assess general psychological distress over the past week. The subjects were presented with 60 adjectives such as unhappy, tense, and cheerful and are asked to indicate the extent to which each adjective represents how they have felt over the past week using a 5- point Likert Scale (0 = not at all to 4 = extremely). The scale yields a total score and 6 subscale scores including representing tension-anxiety, anger-hostility, vigor-activity, fatigue-inertia, depression-dejection, and confusion-bewilderment. Higher scores on the POMS indicate greater distress. The scale has demonstrated excellent internal consistency for both breast cancer and general population samples.

The IES [22] was used to measure intrusive ideation and avoidance using 15 items. Responses are rated on a 4 point Likert scale from 0 = not at all to 5 = often. Higher scores are indicative of greater distress. Horowitz et al. [22] found good internal consistency using Chronbach's alpha for both intrusion ( $\alpha = .78$ ) and avoidance ( $\alpha = .82$ ), with a correlation of  $r = .42$  between the two subscales. Test-retest reliability was also good with  $r = .89$  for intrusion and  $r = .79$  for avoidance [22].

## Results

### Characteristics of Participants

Participants were women with breast cancer undergoing treatment at the Indiana University Simon Cancer Center in Indianapolis and their partners. The patient group included 57 women between the ages of 28-80 ( $m = 51.9$ ,  $SD = 12.19$ ), all of whom were married or in a stable romantic relationship and self-identified as non-Hispanic white (98.2%) or other (1.8%).



Most patients had college degrees (54.4%). The partner group included 56 men and 1 woman between the ages of 30-81 ( $m = 52.96$ ,  $SD = 12.15$ ) who self-identified as non-Hispanic white (100%). Partners were mostly college educated (57.9%) and employed full time (63.2%). A majority of partners reported good to excellent health (89.5%).

Information regarding the illness characteristics and breast cancer experience of the patients are presented in Table 1. Most patients were Stage IV and were experiencing a recurrence of breast cancer.

Of the 112 couples approached, 21 refused to participate in the study (18.75%). Reasons for refusal were health problems ( $n = 11$ ), daily responsibilities ( $n = 7$ ), and not being interested in the study ( $n = 3$ ). We mailed survey packages to 91 couples who were eligible and agreed to participate. Of these, 26 couples did not return their packages (28.57%) even after receiving a reminder phone call. There were 4 patients who returned their packages but their partners did not, and 4 partners who returned their packages but the patients did not (in two of these cases, the patient passed away before completing the survey packages). Because in the present study we are focusing on dyadic variables, we excluded these 8 cases, leaving us with a sample of 57 couples (one couple was same sex), yielding a response rate of 51%. These procedures for recruiting family members of cancer patients are regularly used in psycho-oncology research and typically yield similar or lower percentages of participation [23][24].

### Descriptive Analyses

Table 2 shows bivariate correlations among the distress and appraisal variables for both patient and partners. When examining patient and partner scores *separately*, correlations among the three measures of distress showed moderate relationships (range:  $r = .35$  to  $r = .66$ ,  $p < .05$ ).

However, when examining correlations *between* patient and partner scores, none were significant. Specifically, distress in patients did not correlate with distress in partners. Paired sample t-test comparisons between patients and partners on the various measures of distress showed no statistically significant differences ( $p > .05$ ; see Table 3).

Correlations among the four types of appraisals also showed moderate relationships ( $r = -.39$  to  $r = .65$ ,  $p < .05$ ) in the expected directions. Harm/loss and threat correlated positively with each other and negatively with challenge and benign; challenge and benign correlated positively with each other. However, when examining correlations *between* patient and partner scores, none were significant. Specifically, appraisals in patients did not correlate with appraisals in partners. Paired sample t-test comparisons between patients and partners on the four types of appraisals showed that only challenge appraisals differed between patients and partners ( $p = .007$ ; see Table 3).

Correlations between appraisals and distress were statistically significant when examining patient and partner scores *separately*. Measures of distress correlated with appraisals ( $r = .26$  to  $r = .65$ ,  $p < .05$ ) in the expected directions; i.e. threat and harm loss correlated positively with distress, and challenge and benign correlated negatively with distress. The only non-statistically significant correlation was between challenge appraisal and IES-avoidance for patients ( $r = -.23$ ,  $p > .05$ ) and partners ( $r = -.17$ ,  $p > .05$ ). When examining these relationships *between* patients and partners, only one type of appraisal was statistically significant. Benign appraisals of patients correlated with partner IES-intrusive ( $r = -.33$ ,  $p < .05$ ) and IES-avoidance ( $r = -.31$ ,  $p < .05$ ) scores.

## Main Analyses

Four groups were formed based on how couples matched on cognitive appraisals. For each individual, the highest subscale score on the CAHS (benign, challenge, harm/loss, threat) was considered to be that individual's prevalent appraisal. Benign and challenge appraisals were combined into a *positive outlook* appraisal, and harm/loss and threat were combined into a *negative outlook* appraisal. Groups included couples where both patient (P) and partner (S) reported positive outlook (P+S+; n = 18), couples where the patient had a positive and partner had a negative outlook (P+S-; n = 19), couples where the patient had a negative and partner had a positive outlook (P-S+; n = 10), and finally couples where both reported a negative outlook (P-S; n = 10).

The hypotheses were that: 1) negative outlook (P-S-) couples would have more distress than positive outlook couples (P+S+); and 2) there would be differences in distress in couples mismatched on appraisals (P-S+ and P+S-). Oneway analyses of variance with patient and partner scores by group were run for each distress variable. Given the small sample size, missing data was replaced with the set mean.

Groups were first compared on the POMS. Patient POMS,  $F(3,53) = 5.76$ ,  $p = .002$ , and partner POMS,  $F(3,51) = 5.03$ ,  $p = .004$ , differed by group (see Table 4). For patients, post-hoc analysis supported both hypotheses, the P+S+ ( $p = .004$ ) and the P+S- ( $p = .004$ ) groups were *less distressed* than the P-S- group. For partners, hypothesis 1 was not supported, but hypothesis 2 was; specifically, the P-S+ ( $p = .042$ ) and the P+S+ ( $p = .003$ ) were *less distressed* than the P+S- group (see Figures 1 and 2).

A comparison of groups on the IES-Intrusive Scale indicated a significant difference between groups among patients  $F(3,53) = 4.81, p = .005$ , but no significant difference in groups among the partners  $F(3,53) = 2.20, p = .099$  (see Table 4). Post-hoc analyses of the patient scores supported both hypotheses; specifically, the P+S+ ( $p = .010$ ) and P+S- ( $p = .004$ ) groups were significantly *less distressed* than the P-S- group (see Figures 1 and 2). For partners, neither hypothesis was supported.

Groups were also compared on the IES- Avoidance Scale. Results indicated significant patient  $F(3,53) = 3.84, p = .015$ , and partner  $F(3,53) = 2.79, p = .050$ , differences by group (see Table 4). Post-hoc analyses of the patient groups again supported both hypotheses; specifically, the P+S+ ( $p = .040$ ) and P+S- ( $p = .009$ ) groups scored significantly *less distressed* than the P-S- group. For partners, hypothesis 1 was not supported but hypothesis 2 was, the P+S+ group scored significantly *less distressed* than the P+S- group ( $p = .033$ ; see Figures 1 and 2).

## Discussion

We examined 57 couples where the wife was receiving treatment for breast cancer in an effort to understand the relationship between match or mismatch of the couple's cognitive appraisals and psychological distress variables. We hypothesized 1) that couples where both individuals appraised the cancer as a threat or harm/loss (negative outlook, P-S-) would have more psychological distress than couples where both appraised the cancer as a challenge or benign (positive outlook, P+S+). We did not develop specific hypotheses for mismatched appraisals (P+S- and P-S+) as there was no background literature to suggest any expectations regarding mismatched groups. However, because patients and partners in mismatched couples have a different interpretation of the meaning and impact of the cancer, 2) we expected to find

differences there as well. Our hypotheses suggested partner effects, i.e. partner appraisals would relate to patient distress and patient appraisals would relate to partner distress.

Our general expectation for partner effects was partially supported by the data. Patients in couples matched on positive outlook reported less psychological distress than patients in couples matched on negative outlook (hypothesis 1). Patients and partners in mismatched couples differed in distress (hypothesis 2) in a variety of ways explained further below.

### *Findings for Patients*

Our findings suggest that for patients their own positive outlook relates strongly to lower psychological distress. Specifically, patients who had a positive outlook and had a partner with a negative outlook (P+S-) were not statistically different than patients in matched positive outlook couples (P+S+). This mismatched group also scored statistically less distressed on all variables than the matched negative outlook group (P-S-). This specific finding would seem to discount the partner effects hypothesis that partner appraisals would impact patient distress as much as or more than patients' own appraisals.

However, further examination of the patient data suggests that there is a partner effect for patients. The group where the patient had a negative outlook but the partner had a positive outlook (P-S+) was not statistically significantly different from the two groups where the patient had a positive outlook (P+S+ and P+S-), suggesting some effect of the partner's positive outlook. Examination of Figure 1 would indicate clearly that the psychological distress of the patient is related to her own appraisals, but that partner appraisals play a role in her distress as well. These findings match the literature on cognitive appraisals focused on individuals. For example, as

early as 1993 Stanton and Snider [8] had found that threat appraisals predicted higher scores on  
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the POMS. However, the findings extend our understanding of the relationship between cognitive appraisals and mental health by showing how partner appraisals play a role in patient distress.

### *Findings for Partners*

The partner effects are more clearly found in the partner data. For partners, the worst possible group to be in was that in which the partner had a negative outlook and the patient had a positive outlook (P+S-). These findings are intriguing, and contrary to the findings for patients. Possible explanations for this are threefold: social support and communication within the couple, gender role theory, and partner concerns about medical decision-making. Although we had one same sex couple in the dataset, two of our explanations for these intriguing partner effects are based on having mostly male **partners** of female patients. Specifically, the social support and gender role theory explanations are gender-based.

In general, a partner may be less likely to share fears and concerns with the patient who is holding a positive outlook for fear of dampening the patient's spirits. Communication in couples often suffers when dealing with a diagnosis of cancer as partners attempt to protect each other from feelings of fear and grief [25]. This behavior may be especially problematic for male partners though. Male partners of cancer patients report that their main source of support is their wife, and that they do not receive equivalent support from nurses, friends, and family [26]. Male partners with negative outlooks, fear, and grief may be unable or unwilling to communicate this with their patient-wife. In so doing, they are not making use of their major source of support which may lead to further psychological distress.

Another explanation for these findings may come from gender role theory. Men are socialized into a 'hegemonic male' role [27], which requires them to be socially dominant, ignore their own needs and fears, and be protectors of their wives. Success at the role of protector can only happen in a situation in which the woman is more in need of help than he is. In the present study, women who were challenged by the cancer when their husbands were threatened by it may have been caused disruption in the inherent gender roles typically ascribed to each in the relationship. This behavior on her part precludes him from fulfilling his gender role, and may be associated with common feelings of powerlessness, fear, and loneliness among husbands [25]. If she is taking on the challenge, he may instead find that he is helpless to solve her problems. In the case of her cancer, there is not much he can do about the disease anyways. Therefore, his role is impeded by both the behavior of the woman and the characteristics of the stressor. Phipps [28] assessed couples facing infertility treatment and found many of these themes expressed by the husbands. In these cases, having to give up the traditional role he is accustomed to may further lead to distress. Although this explanation may become less and less relevant as gender role theory becomes increasingly obsolete [27], it may be appropriate in the present study given the demographic characteristics of our sample in terms of age and ethnicity.

A third possible explanation is that partners may worry that if the patient holds an unrealistic positive outlook, she may not make the right decisions regarding medical care. Specifically, if she is not appropriately threatened by the disease, she may not make decisions as carefully, or may allow doctors to decide on treatment issues. Fears of death are common but seldom discussed among patients and partners [25], and it is expected that those who have a negative outlook may be especially fearful in this regard. Partners who are fearful that the cancer may lead to death may be especially worried about treatment decision making in their partners.

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In the present study, the majority of patients had terminal disease, and so these fears are especially justified in this group of partners.

### *Implications for Research*

Since Lazarus and Folkman [16] presented their transactional stress model, research has focused mostly on the construct of coping. In the model, cognitive appraisals impact health outcomes through coping. Which coping strategies an individual will use is determined by the cognitive appraisals the individual makes. Because coping behaviors can be changed and learned, they are amenable to interventions, and therefore valid as a focus. However, cognitive appraisals may be changeable as well, and therefore potentially amenable to interventions. The findings presented here suggest we should understand cognitive appraisals better and examine them as potential foci of interventions. Research focused on cognitive appraisals would identify factors that determine what appraisals individuals will make, and how to change appraisals that result in ineffective forms of coping. Focusing on this construct may in fact provide researchers with tools that practitioners who work directly with patients and families can use to reduce distress.

### *Implications for Practice*

Ultimately, patients and partners have the least psychological distress when they are matched on positive outlook, i.e. they both perceive the cancer as a challenge to overcome, not a threat to fear. It is these clear findings that suggest potential interventions for couples. Even in the case of terminal cancer, couples can be shown ways to fight the devastating effects that the cancer may have on their relationships, families and plans for the future. For example,

interventions aimed at reevaluating their lives and goals might give couples a shared purpose for  
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the months ahead as they actively seek treatment, but also seek normalcy in their lives. Interventions already exist. For example, Lee and colleagues [29] improved self-esteem, optimism and self-efficacy through an intervention which includes an exercise called “Lifeline” in which the patients create a narrative and timeline of the important events of their life and include the cancer experience into this timeline as a way of helping them to make meaning of life as a whole. Similarly, Breitbart and Heller [30] reduced hopelessness and depression in a group intervention that centered on spiritual well-being and making meaning as a way to improve quality of life. Chochinov’s Dignity Therapy [31] reduces distress by addressing the fears of cancer patients facing end of life.

However, none of these therapies include partners, and all are focused at end of life. Studies that effectively help couples discuss their appraisals, reappraise their life goals in the face of cancer, and communicate effectively regardless of appraisals may help reduce the negative partner effects evident in the present study.

### *Limitations of the Study*

The present study is not without limitations. The most obvious one is the small sample size. Another limitation is our inability to determine causal relationships among appraisals and distress because of the cross-sectional design. Our sample was homogeneous in terms of demographics, and therefore our findings may only generalize to financially well-off Caucasians living in the U.S. Although the response rate of 51% is common in studies of breast cancer patients undergoing treatment [23][24], it is a limitation of this study; we do not know whether the appraisals and distress levels of those who did not volunteer differ or in what way from those who agreed to participate. Lastly, although we asked participants to complete the self-report

packets individually, we cannot be sure that patient and partner responses were completed independently.

In spite of these limitations, this study extends our understanding of the role of appraisals on psychological distress in this population and adds to the literature an understanding of how appraisals in couples may impact the functioning of individuals within the couple.

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Table 1. *Illness Characteristics of Patients<sup>a</sup>*

Variable	PATIENT Frequencies
Severity of cancer	
Stage I	1.8%
Stage II	5.3%
Stage III	21.1%
Stage IV	71.9%
Treatments <sup>b</sup>	
Lumpectomy	19.3%
Radiation Therapy	24.6%
Chemotherapy	31.6%
Hormone Therapy	3.5%
Mastectomy	21.1%
Breast cancer experience	
First	31.6%
Recurrence	68.4%

Notes: <sup>a</sup>: as reported by patients; <sup>b</sup>: patients could report more than one treatment

Table 2. Zero Order Correlations among Distress and Appraisal Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Intrusive Patient	♦													
2. Intrusive Partner	.14	♦												
3. Avoidant Patient	.66**	-.08	♦											
4. Avoidant Partner	.06	.60**	.01	♦										
5. POMS Patient	.49**	-.06	.45**	-.01	♦									
6. POMS Partner	-.09	.50**	.01	.50**	-.13	♦								
7. Threat Patient	.51**	.20	.34**	.10	.45**	-.10	♦							
8. Threat Partner	-.04	.36**	.07	.31*	.08	.43**	-.04	♦						
9. Harm/loss Patient	.44**	-.05	.46**	.03	.65**	.04	.57**	.19	♦					
10. Harm/loss Partner	-.02	.37**	.12	.43**	.12	.66**	.02	.65**	.21	♦				
11. Challenge Patient	-.26*	-.10	-.23	-.09	-.41**	-.04	-.52**	-.10	-.44**	-.07	♦			
12. Challenge Partner	.08	-.28*	-.06	-.17	-.08	-.52**	-.10	-.40**	-.15	-.46**	.18	♦		
13. Benign Patient	-.56**	-.33*	-.39**	-.31*	-.44**	-.13	-.59**	-.14	-.41**	-.22	.42**	.01	♦	
14. Benign Partner	-.20	-.34*	-.18	-.18	-.04	-.33*	-.08	-.47**	-.16	-.39**	.05	.39**	.18	♦

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

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Table 3. Means and Standard Deviations for Distress and Appraisals

Variable	Patient N=56 Means (SD)	Partner N=56 Means (SD)
<i>Distress</i>		
Profile of Mood States	51.68 (24.28)	58.78 (34.16)
Impact of Events Scale		
Intrusive	12.19 (8.44)	11.35 (8.11)
Avoidance	11.14 (7.07)	11.05 (8.22)
<i>Appraisals</i>		
Threat	3.00 (0.86)	3.27 (0.66)
Challenge**	3.78 (0.64)	3.45 (0.71)
Harm/loss	2.75 (0.82)	2.60 (0.70)
Benign	2.11 (0.73)	2.00 (0.70)

Note: for measures of distress, higher scores = more distress; for appraisals, scale ranged from 1 = strongly disagree to 5 = strongly agree.

\*\*p < .01 for patient v. partner comparisons

Table 4. ANOVA Table for Appraisal-Match Group by Psychological Distress Variable

Source	PATIENT				PARTNER			
	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
POMS	(3, 53)	5.761	.246	.002	(3, 51)	5.029	.228	.004
IES-Intrusive	(3, 53)	4.814	.214	.005	(3, 53)	2.196	.111	.099
IES-Avoidance	(3.54)	3.838	.178	.015	(3, 53)	2.785	.136	.050

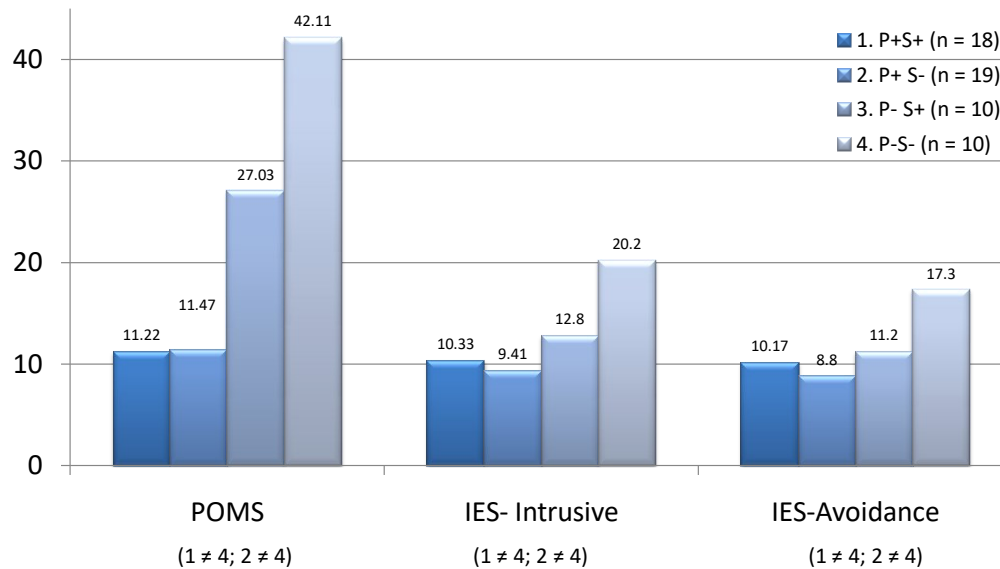


Figure 1. Patient Distress by Match Group

Note: POMS scores on graph are calculated without the constant added (+32) for ease of presentation.

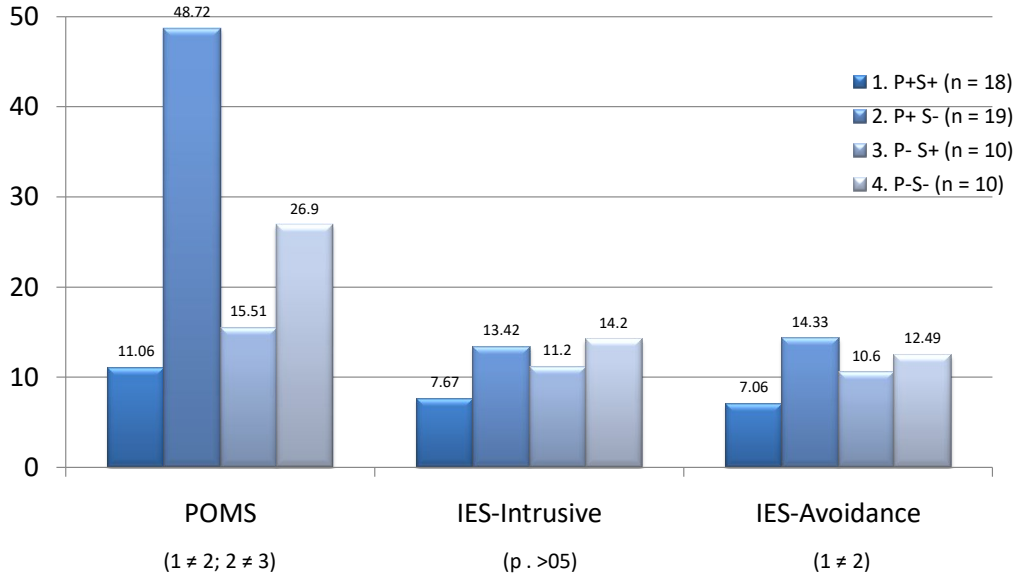


Figure 2. Partner Distress by Match Group

Note: POMS scores on graph are calculated without the constant added (+32) for ease of presentation.