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A Dyadic Approach: Applying a Developmental-Conceptual Model to Couples Coping With Chronic Illness

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Abstract

The purpose of the present study was to apply Berg and Upchurch's developmental-conceptual model toward a better understanding of how couples cope with chronic illness. Specifically, a model was hypothesized in which proximal factors (relational quality), dyadic appraisal (illness interference), and dyadic coping (partner support) influence adjustment (health condition management). The study was cross-sectional and included 308 dyads in which one partner has a chronic health condition. The actor partner interdependence model shows how congruence and noncongruence in relational quality, dyadic appraisal, and dyadic coping influence dyadic adjustment.

Keywords

cancer, chronic illness, coping, dyadic coping, illness appraisal, support

Chronic illnesses such as heart disease, stroke, cancer, diabetes, and arthritis are among the most prevalent of all health problems in the United States (Centers for Disease Control and Prevention [CDC], 2013). The CDC defines chronic illness as prolonged in duration, not resolving spontaneously, and rarely cured completely. Managing a chronic illness affects not only ill individuals but also their partner, and the relationships of these individuals as well (Acitelli & Badr, 2005; Berg & Upchurch, 2007; Bodenmann, 2005).

Couples Coping With Chronic Illness

A sizable body of research exists on how couples cope with the stresses associated with managing a chronic illness known variously as relationship-focused coping (Coyne, Ellard, & Smith, 1990), communal coping (Afifi, Hutchinson, & Krouse, 2006; Lyons, Mickelson, Sullivan, & Coyne, 1998), "we" talk (Acitelli & Badr, 2005; Revenson, Kayser, & Bodenman, 2005; Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008), and dyadic coping (Berg & Upchurch, 2007). Although the terms are often used interchangeably in the literature, we use the term *dyadic coping* to refer to a variety of ways that couples potentially interact (e.g., uninvolvement, support, collaboration, protective buffering, active engagement) as they manage stressors.

Social support (e.g., emotional, instrumental, communicative) is one aspect of dyadic coping and is a salient feature of managing the day-to-day stresses associated with chronic illness (e.g., Goldsmith, 2004, 2009). For example, everyday conversations, routines, and shared activities with one's partner can assist patients' recovery from a heart attack or coronary artery bypass surgery (Goldsmith, 2004). Yet couples may experience the impact of one partner's illness differently in their relationships (Berg et al., 2008; Checton, Greene, Magsamen-Conrad, & Venetis, 2012; Fekete, Stephens, Mickelson, & Druley, 2007), as numerous factors influence both patients' and partners' appraisals of managing chronic illness. Differential illness experiences between patients and partners are worth exploring to best develop strategies for supporting couples, especially in terms of variables over which they have control (e.g., support perceptions, patterns, and practices) versus those they cannot control (i.e., the chronic illness).

Berg and Upchurch (2007) proposed a developmental-contextual model as a framework for understanding how dyadic processes may vary across the life span and across different contexts that couples find themselves adapting to, especially in relation to the constraints of different illnesses. Recent studies have examined components of Berg and Upchurch's model such as dyadic appraisals of intrusive

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thoughts of prostate cancer (Fagundes, Berg, & Weibe, 2012) and prostate cancer characteristics (Merz et al., 2011), dyadic coping strategies of posttraumatic stress disorder victims and their spouses (Gilbar, Weinberg, & Gil, 2012), and collaborative coping for couples managing prostate cancer (Berg et al., 2008). The purpose of the current study was to apply Berg and Upchurch's (2007) framework to couples' perceptions of appraising, coping, and managing a variety of chronic illnesses.

A Developmental-Conceptual Framework

Consistent with prior literature (Goldsmith, 2009; Revenson, Kayser, & Bodenman, 2005), Berg and Upchurch's (2007) model views chronic illness as affecting both patients and partners, thereby requiring assessments of contextual factors, the illness itself, coping, and adjustment from the perspective of both individuals.

Contextual Characteristics. Couples who experience chronic illness are affected by *sociocultural* and *proximal contextual* factors. Sociocultural contextual factors such as culture, age, and gender may influence people's illness appraisals, coping, and illness management or adjustment. In terms of gender, for example, men may be less skillful than women in producing emotion-oriented support messages (MacGeorge, Gillihan, Samter, & Clark, 2003), while women tend to be nurturers in their relationships even when they are ill (Revenson, Abraido-Lanza, Majerovitz, & Jordan, 2005).

Proximal contextual factors such as illness condition (e.g., stage of illness) and marital quality also influence dyadic appraisal, coping, and adjustment. Being in a quality relationship, for instance, has been shown to influence physical and psychological well-being (Cunningham & Barbee, 2000; Uchino, 2004), psychosocial adjustment (Kiecolt-Glaser & Newton, 2001), perceptions of partner support (Checton & Greene, 2012), disclosure efficacy when sharing health information (Greene et al., 2012), and patient's physical impairment and spouse's psychological distress (Fang, Manne, & Pape, 2001). The transactional nature of Berg and Upchurch's model suggests that marital satisfaction can increase the likelihood of dyadic appraisal and coping (see also Berg et al., 2008). Thus, we expect that relational quality will positively influence dyadic appraisal and coping.

Dyadic Appraisal. Berg and Upchurch (2007) examined three aspects of dyadic appraisal (i.e., illness representations, illness ownership, and specific stressor appraisals). For example, a *specific stressor* may be concerns about an illness interfering in couples' lives (Yorgason et al., 2010). About one fourth of people with chronic illnesses have one or more daily activity limitations (CDC, 2013; see also Anderson, 2004). Appraisals of illness interference or intrusion stem from a myriad stressors associated with the disease itself such as pain, fatigue, and disability, and/or treatment side effects (Devins, 2010). Additionally, chronic illness may interfere in couples' lives if the ill partner becomes less active in household and social responsibilities (Oliver & Cronan, 2005), or if a caregiving partner experiences burdens such as time demands, physical exhaustion, mental stress, or even personal health risks (see Burton et al., 2012). Taking a relationship perspective (e.g., "we" talk), however, may benefit couples managing chronic illness (Badr & Acitelli, 2005; Revenson, Kayser, et al., 2005; Rohrbaugh et al., 2008). Thus, we hypothesize that the better the perceived quality of partners' relationships, the less likely they are to view a chronic illness as interfering in their lives (dyadic appraisal).

In turn, perceptions of a chronic illness as interfering in couples' lives may influence dyadic coping in unique ways. For example, patients' and partners' perceptions that one partner's illness interfered in their lives negatively influenced their ability to share information with their partner about the health condition (Checton et al., 2012). A partner's illness may also interfere in individuals' lives and influence each partner's perceptions of providing/receiving support. Goldsmith, Lindholm, and Bute (2006), for instance, found that for partners of patients recently diagnosed with heart disease, talking about lifestyle change (e.g., diet, exercise) can convey caring and intimacy but can also imply control, criticism, and a reminder of illness. Thus, we expect that dyadic appraisal of illness as interfering in partners' lives will negatively influence perceptions of partner support (dyadic coping).

Dyadic Coping and Adjustment. Dyadic coping and adjustment can be viewed as a developmental process that occurs over time "and sequentially as coping unfolds in more discrete time moments across a conversation or over days" (Berg & Upchurch, 2007, p. 941; see also Bodenmann, 2005). Support is an important feature of managing chronic illness and partners are often the first to provide tangible assistance and support for ill partners (Revenson, Abraido-Lanza, et al., 2005). Studies reveal that partner support is particularly important for people with heart-related illnesses in terms of managing depression (Bosworth et al., 2000; Shen, McCreary, & Myers, 2004), promoting health (Franks, Wendorf, Gonzalez, & Ketterer, 2004; see also Goldsmith et al., 2006), preventing accelerated disease progression (Wang, Mittleman, & Orth-Gomer, 2005), and the ability to talk to their partner about their heart condition (Checton & Greene, 2012). For women managing lupus, a partner's emotional support and responsiveness were associated with well-being (Fekete et al., 2007).

Alternately, perceived *negative* partner behaviors (e.g., lack of support, criticism, nagging) have been shown to negatively influence adjustment for people managing heart disease (e.g., Goldsmith, 2009) and rheumatoid arthritis (Manne & Zautra, 1989), and were negatively associated with relationship satisfaction for couples dealing with diabetes (Schokker et al., 2010). A dyadic perspective may be useful

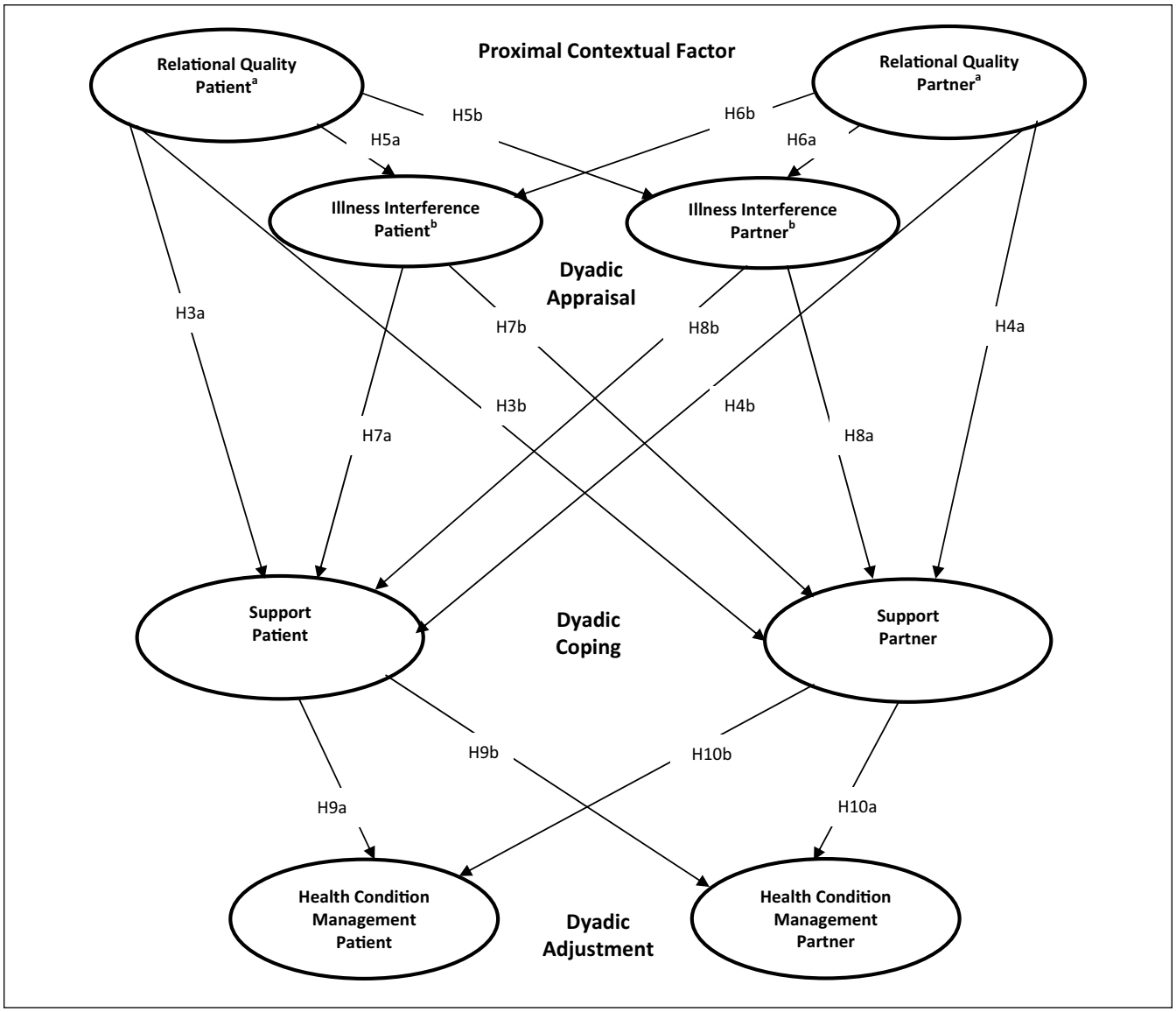

Figure 1. Hypothesized model.
[a]Denotes patient and partner relational quality are correlated. [b]Denotes patient and partner illness interference are correlated.

for predicting when support will be beneficial (or not) for illness adjustment for patients and partners. Thus, we hypothesized that perceptions of partner support will positively influence perceptions of managing a chronic health condition (adjustment).

Proposed Model

We tested Berg and Upchurch's (2007) developmental-conceptual model with individuals managing chronic illnesses other than cancer (e.g., heart disease, diabetes; see Figure 1). First we hypothesized that patients' and partners' relational quality (proximal contextual factor) are positively correlated (Hypothesis 1); and patients' and partners' illness interference (specific stressor) are positively correlated (Hypothesis 2). Next, we hypothesized that relational quality positively influences patients' (Hypotheses 3a and 3b) and partners' (Hypotheses 4a and 4b) support (dyadic coping). Relational quality also inversely influences patients' (Hypotheses 5a and 5b) and partners' (Hypotheses 6a and 6b) illness interference (dyadic appraisal). In turn, illness interference inversely influences patients' (Hypotheses 7a and 7b) and partners' (Hypotheses 8a and 8b) support, and support positively influences patients' (Hypothesis 9a and 9b) and partners' (Hypotheses 10a and 10b) health condition management (adjustment). Finally, we asked whether illness interference directly influences health condition management (Research Question 1).

Method

We used an actor partner interdependence model (APIM; Arbuckle, 2010; Cook & Kenny, 2005; Cook & Snyder, 2005) to investigate the effect of patients' and partners' perceptions of contextual factors, appraisal processes, and dyadic coping on their adjustment, applied to a nested model design. The APIM uses the dyadic interaction as the unit of analysis (Kenny, Kashy, & Cook, 2006). This strategy accounts for the dyadic nature of illness management where partners interact constantly and is an appropriate strategy to test a developmental-contextual model, because in the APIM model each partner's independent variables affect the dependent variables for both partners, as well each other's dependent variables.

Participants

The original sample included 308 couples ($N = 616$ individuals) where *one* partner ($n = 308$) was diagnosed with a nonvisible health condition. Twenty-three couples were eliminated because of missing data. The final sample included 285 male ($n = 172$, 60%) and female ($n = 113$, 40%) participants with the diagnosis (henceforth referred to as "patient") and their heterosexual partners. Participants ranged in age from 28 to 87 years ($M = 52.33$, $SD = 10.79$). Among participants who reported ethnicity ($N = 600$), 70% were Caucasian, 11.7% Asian, 7% African American, 5.7% Hispanic/Latino, and 3% other. Participants reported being in a relationship with their partner from less than 1 year to 61 years ($M = 24.21$, $SD = 12.52$). Participants self-reported the following diagnoses: heart-related (32%), endocrine (25%), psychiatric (10%), rheumatologic (6%), digestive (6%), pulmonary (5%), neurologic (3%), hematologic (3%), and other (e.g., tinnitus, 10%), and the time since diagnosis ranged from 1 year to 6 years ($M = 2.13$, $SD = 1.45$).

Procedure

We utilized a network sampling technique where as a part of the research component of a course, upper-level undergraduate students recruited couples where one member of the couple had a nonvisible health condition. Inclusion criteria were (a) both partners agreed to participate and were at least 30 years old; (b) partners were in a committed relationship (e.g., dating exclusively for at least 6 months); (c) only *one* partner has a physical or mental health condition; (d) each person was willing to release his/her phone number for random callbacks; and (e) partners were able to fill out the survey individually and without assistance (able to read/write in English). Couples completed surveys individually and privately in their own homes, at the same time but with partners separated. Human subjects certified researchers were present during survey completion.

All undergraduate researchers received human subjects certification, and a university institutional review board approved the research protocol. Researchers conducted an extensive training session with the undergraduate researchers. Undergraduate researchers explained the purpose of the study to couples during prearranged face-to-face meetings. After signing consent forms, the couples *individually* completed a survey (~15 minutes), placed the survey in an envelope, sealed it, and returned the envelope. Undergraduate researchers returned the signed consent forms and sealed envelopes (separately) to the researchers. Finally, to verify consent to participate and to ensure participation of only those couples managing a chronic health condition, participants were asked to provide their phone number for random callbacks. Researchers conducted verification callbacks (23% contact), and all data from one undergraduate researcher were deleted.

Measures

We measured the following variables for both patients and partners: relational quality, illness interference, support, and health condition management. We used principal axis analysis (direct oblimin) to evaluate the dimensionality of all measures. We created composite scores by averaging responses to individual items and estimated reliability using Cronbach's alphas. In the next section, sample items are from patient surveys, and wording in brackets is from partner surveys. We used identical items for both patient and partner for all composite variables.

Relational Quality. We measured relational quality as a proxy for proximal contextual factors. We assessed participants' perceptions of the quality of their relationships using Rubin's (1970) Love scale with six 7-point Likert-type items. Responses ranged from 1 (s*trongly disagree*) to 7 (s*trongly agree*). Principal axis analysis (direct oblimin) and scree plot indicated a single factor for patients (eigenvalue = 5.02, 56% var., all items loading above .62) and partners (eigenvalue = 4.74, 53% var., all items loading above .60). A sample item included "If I am lonely, my first thought is to seek my partner out." Higher scores indicated perceptions of more relationship quality. Reliability was good for patients ($\alpha = .90$, $M = 5.97$, $SD = 0.92$) and partners ($\alpha = .88$, $M = 5.83$, $SD = 0.93$).

Illness Interference. We measured illness interference as a proxy for dyadic appraisal factors. We assessed participants' perceptions of the degree to which the patient's health condition interfered with each other's daily lives and partners' relationship with nine 5-point Likert-type items adapted from prior research (e.g., Checton et al., 2012). Responses ranged from 1 (s*trongly disagree*) to 7 (s*trongly agree*). Principal axis analysis (direct oblimin) and scree plot indicated a single factor for patients (eigenvalue = 5.56, 62% var., all items loading above .67) and partners (eigenvalue = 5.30, 59% var., all items loading above .64). A sample item

Table 1. Bivariate Zero-Order Correlation Matrix for Study Variables.

	1	2	3	4	5	6	7	8
1. RelQuality-Pt	1.00							
2. Ill-Interfere-Pt	−.06	1.00						
3. Support-Pt	.46**	−.17**	1.00					
4. Manage-Pt	.10	−.53**	.15**	1.00				
5. RelQuality-Part	.38**	−.05	.30**	.06	1.00			
6. Ill-Interfere-Part	−.01	.53**	−.06	−.30**	−.20**	1.00		
7. Support-Part	.24**	−.16**	.23**	.07	.57**	−.31**	1.00	
8. Manage-Part	.19**	−.05	.04	.02	.26**	−.13*	.14*	1.00

Note. RelQuality-Pt = patient relational quality; Ill-Interfere-Pt = patient illness interference; Support-Pt = patient support; Manage-Pt = patient health condition management; RelQuality-Part = partner relational quality; Ill-Interfere-Part = partner illness interference; Support-Part = partner support; Manage-Part = partner health condition management.
**$p \leq .01$. *$p \leq .05$, two-tailed.

Table 2. Summary of Gender Differences in Study Variables for Patients.

Study variables	Independent-samples *t* test (*df*)	Male, *M, SD* (*n*)	Female, *M, SD* (*n*)
Relationship Quality	$t = 2.20$* (291)	$M = 6.05$, $SD = 0.95$ (177)	$M = 5.80$, $SD = 0.87$ (116)
Illness Interference	$t = -1.50$ (290)	$M = 2.29$, $SD = 0.89$ (178)	$M = 2.46$, $SD = 0.99$ (114)
Support	$t = 1.07$ (292)	$M = 5.72$, $SD = 0.92$ (178)	$M = 5.60$, $SD = 1.11$ (116)
Health Condition Management	$t = 0.15$ (292)	$M = 3.96$, $SD = 0.72$ (178)	$M = 3.95$, $SD = 0.71$ (116)

*$p < .05$, two-tailed.

included "The health condition interferes with our relationship." Higher scores indicated perceptions of more illness interference. Reliability was good for patients (α = .83, M = 2.36, SD = 0.94) and partners (α = .91, M = 2.26, SD = 0.91).

Support. We measured support as a proxy for dyadic coping factors. We measured the extent to which patients and partners perceive that their partner responds supportively in conversations about the patient's chronic illness with five items adapted from prior research (Greene et al., 2012). The items' stem asked participants to consider "how your partner generally responds to you when you talk about your [his/her] health condition," and responses ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). Principal axis analysis (direct oblimin) and scree plot indicated a single factor for patients (eigenvalue = 2.83, 56% var., all items loading above .44) and partners (eigenvalue = 3.30, 66% var., all items loading above .46). A sample item included "My partner listens sympathetically." Higher scores indicate more perceived support. Reliability was good for patients (α = .78, M = 5.64, SD = 1.03) and partners (α = .85, M = 5.51, SD = 1.12).

Health Condition Management. We measured health condition management as a proxy for dyadic adjustment. We measured the extent to which patients and partners perceive that they are managing the patient's chronic health condition with five 5-point Likert-type items used in prior research (e.g., Checton et al., 2012), with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Principal axis analysis (direct oblimin) and scree plot indicated a single factor for patients (eigenvalue = 2.33, 58% var., all items loading above .73 after discarding one item) and partners (eigenvalue = 2.96, 74% var., all items loading above .83 after discarding one item). A sample item included "I have learned to live with my [my partner's] health condition." Higher scores indicated better health condition management. Reliability was good for patients (α = .74, M = 3.97, SD = 0.66) and partners (α = .87, M = 3.95, SD = 0.94).

Results

Preliminary Analyses

Data were screened for normality at the item and composite levels (skewness or kurtosis approaching 2/−2 or greater) as well as for multivariate outliers, and no transformations were needed. Table 1 presents bivariate correlations. First, we conducted independent-samples *t* tests to evaluate gender differences (sociocultural context) for patients and partners and the study variables. For *patients*, significant gender differences were found for relationship quality, $t(291) = 2.20$, $p < .05$. That is, male patients reported significantly higher relationship quality (n = 177; M = 6.05, SD = 0.95) compared to female patients (n = 116; M = 5.80, SD = 0.87; see Tables 2 and 3). Independent-samples *t* tests were also conducted to

Table 3. Summary of Gender Differences in Study Variables for Partners.

Study variables	Independent-samples *t* test (*df*)	Male, *M, SD* (*n*)	Female, *M, SD* (*n*)
Relationship Quality	*t* = 1.79 (294)	*M* = 5.96, *SD* = 0.85 (110)	*M* = 5.76, *SD* = 0.98 (186)
Illness Interference	*t* = 2.60* (294)	*M* = 2.44, *SD* = 0.99 (110)	*M* = 2.16, *SD* = 0.80 (186)
Support	*t* = 1.32 (293)	*M* = 5.61, *SD* = 0.92 (110)	*M* = 5.44, *SD* = 1.19 (185)
Health Condition Management	*t* = 1.05 (294)	*M* = 3.95, *SD* = 0.94 (110)	*M* = 3.83, *SD* = 0.93 (186)

*$p \leq .01$, two-tailed.

evaluate patients and partners' perspectives (patients vs. partners) for study variables. Results indicated no significant differences.[1]

Next, we tested hypotheses using maximum likelihood structural equation modeling (AMOS 18). The strategy accounts for measurement error and makes it possible to assess hypothesized associations. Three goodness-of-fit indices were used to evaluate the models; we determined that the model fit the data if the relative $\chi^2(\chi^2/df)$ was less than 3, comparative fit index (CFI) was .90 or greater, and root mean square error of approximation (RMSEA) was ≤.08 (Browne & Cudeck, 1993; see also West, Taylor, & Wu, 2012). We begin by describing structural equation modeling to construct an APIM to test the hypotheses.

Substantive Analyses

We utilized an APIM as the analytical framework for modeling the dyadic effects predicted by Hypotheses 1 to 10 because this methodological approach allows us to account for the interdependence that exists between partners (e.g., Cook & Kenny, 2005; Cook & Snyder, 2005), especially in the context of dyadic appraisal, coping, and adjustment. Our final model reports the unstandardized path coefficients. This method is favored in studies that compare across groups (i.e., the comparisons made here between patients and partners) because different groups may produce indicators, latent variables, or error terms with different variances (Knobloch & Theiss, 2010).

Dyadic Appraisal of Chronic Illness. First, we calculated the error variance $(1 - \alpha)(\sigma^2)$ for each latent variable in the model to account for measurement error (Stephenson & Holbert, 2003). Results of the SEM revealed that the predicted model (see Figure 1) did not adequately fit the data, $\chi^2(10) = 97.30$, *relative* $\chi^2 = 9.73$, $p = .001$, CFI = .80, RMSEA = .18, Akaike information criterion (AIC) = 149.30. To improve model fit we examined modification indices and added paths based on the magnitude of the modification indices and theory, such that suggested paths with the largest values were added first. We added paths from illness interference to patients' health condition management (Research Question 1). After adding these paths the model adequately fit the data, $\chi(8) = 22.07$, *relative* $\chi^2 = 2.76$, $p = .005$, CFI = .97, RMSEA = .08, AIC = 78.07.

As predicted, patient and partner relational quality and patient and partner illness interference are positively correlated. Thus, Hypotheses 1a and 1b and Hypotheses 2a and 2b were supported. Both patients' and partners' perceptions of relational quality positively predicted patients' and partners' support (thus, Hypotheses 3a and 3b and Hypotheses 4a and 4b are supported). Patients' perceptions of relational quality negatively predicted partners' illness interference (Hypothesis 5b supported) but not patients' illness interference (Hypothesis 5a not supported). Partners' perceptions of relational quality negatively predicted partners' illness interference (Hypothesis 6a supported) but not patients' illness interference (Hypothesis 6b not supported). Only partners' perceptions of illness interference negatively predicted partners' support (Hypothesis 8a supported; Hypothesis 8b and Hypotheses 7a and 7b not supported). Both patients' and partners' illness interference negatively predicted patients' health condition management (thus answering Research Question 1). Patient support positively predicted patients' health condition management (Hypothesis 9a supported) but not partners' (Hypothesis 9b not supported). Similarly, partner support positively predicted partners' health condition management (Hypothesis 10a supported) but not patients' (Hypothesis 10b not supported).

Although the model fit was a good fit to the data as hypothesized, because this is one of the first known tests of the developmental-contextual model, we wanted to explore the possibility of creating a more parsimonious model by removing nonsignificant paths. We removed nonsignificant paths one at a time starting with the least significant path. First, we removed the path from patients' perceptions of relationship quality to patients' illness interference (Hypothesis 5a). Removing this path improved model fit, $\chi^2(9) = 22.08$, *relative* $\chi^2 = 2.45$, $p = .009$, CFI = .97, RMSEA = .07, AIC = 76.08. Second, we removed the path from patients' perceptions of support to partners' health condition management (Hypothesis 9b). Removing this path improved model fit, $\chi^2(10) = 22.16$, *relative* $\chi^2 = 2.22$, $p = .01$, CFI = .97, RMSEA = .07, AIC =74.16. Third, we removed the path from patients' perceptions of relationship quality to partners' illness interference (Hypothesis 5a). Removing this path did not improve model fit, $\chi^2(11) = 26.08$, *relative* $\chi^2 = 2.37$, $p = .27$, CFI = .97, RMSEA = .07, AIC =74.16, and therefore was retained in the final model. Thus, the second model is nested within the first model (see Figure 2).

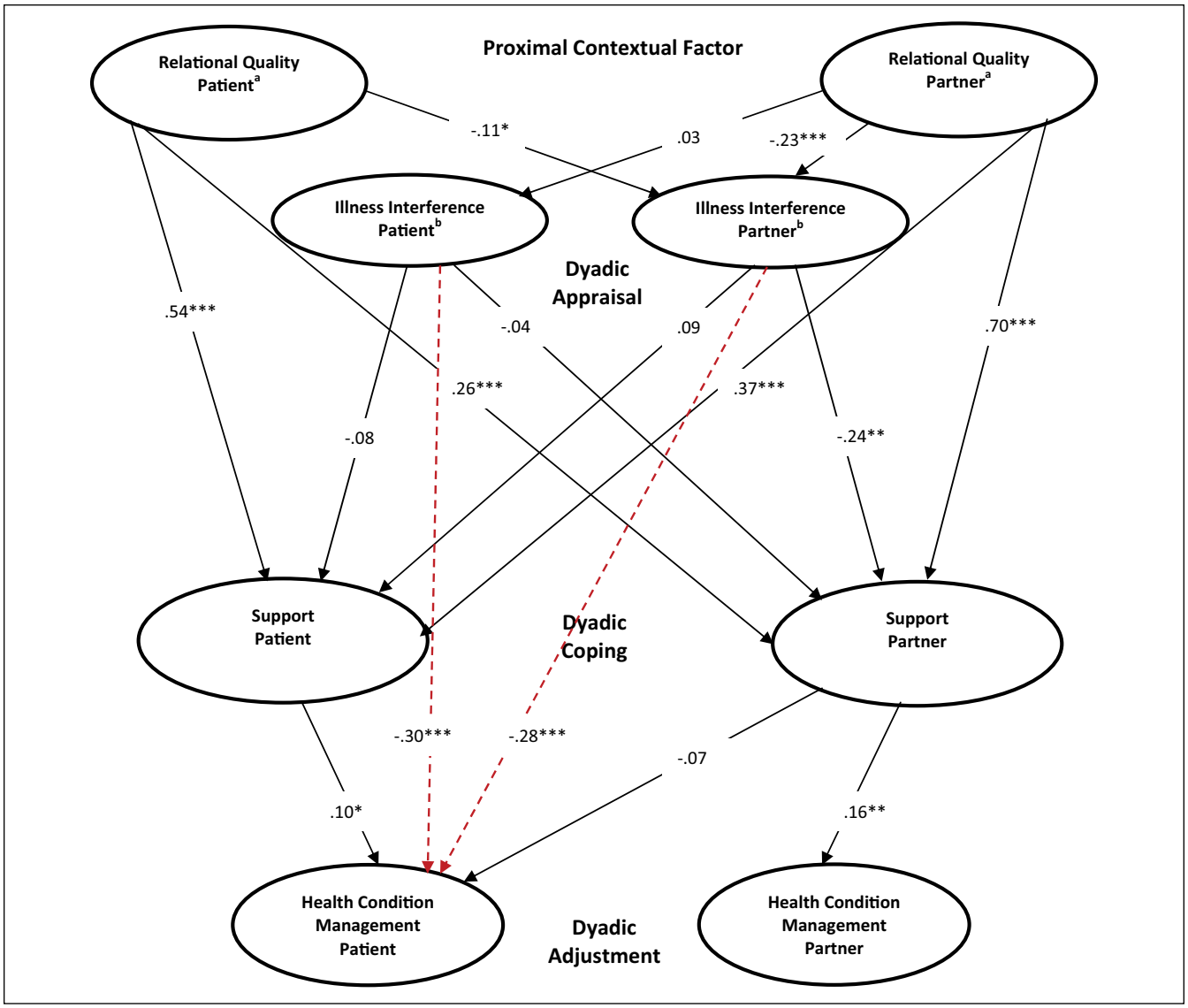

Figure 2. Results for dyadic appraisal of chronic illness.
[a]Denotes patient and partner relational quality are correlated (.30***). [b]Denotes patient and partner illness interference are correlated (.52***).
- - - → Paths added based on research question and modification indices.
Paths *$p < .01$. **$p < .001$. ***$p < .0001$.

Discussion

This study applies Berg and Upchurch's (2007) developmental-conceptual model to couples managing chronic illness, providing a unique perspective of how couples' dyadic appraisal and coping influences adjustment. The present study makes two contributions to the literature. First, this study successfully applies Berg and Upchurch's (2007) framework to predict how proximal contextual factors, dyadic appraisal, and dyadic coping influence dyadic adjustment in a chronic illness context. Second, the study illustrates that illness interference was a stronger predictor (albeit negative) of patients' health condition management than was partner support. We begin the discussion by examining similarities and differences in contextual characteristics, dyadic appraisal, coping, and adjustment; and then turn to practical implications, limitations, and future research.

Similarities in Dyadic Appraisal, Coping, and Adjustment

Sociocultural characteristics such as age and gender influence people's management of chronic illness. Although we found no significant age differences, regarding gender, male *patients* reported significantly higher relational quality than

did female patients, and male *partners* reported significantly higher illness interference compared to female patients. These findings suggest that there may be more strain or burden in being a male partner than in being a male patient, which is not surprising as women tend to be the nurturers in their relationships even when they are ill (Revenson, Abraido-Lanza, et al., 2005). The findings also suggest that while partners may use different coping strategies (Badr, 2004), we also need to examine how partners cope together in the face of shared stressors.

As expected, relational quality played a salient role in dyadic coping. The better the perceived quality of individuals' relationships, the more they perceived receiving support from their partner, and the more they perceived that their partner receives support from them. The finding is consistent with prior research indicating that relational quality is positively related to partner support (Checton & Greene, 2012), and that marital satisfaction is positively associated with collaborative coping for couples dealing with prostate cancer (Berg et al., 2008), and with active engagement for patients and partners managing diabetes (Schokker et al., 2010).

Another similarity is couples' dyadic appraisal of illness interference as negatively influencing patients' perceptions of managing their health condition, and partners' perceptions that the patient is managing the health condition (but not patients' and partners' perceptions that the *partner* is managing the patients' health condition). Dyadic appraisals of illness interference may be similar to people's appraisals of illness uncertainty (e.g., as a danger or an opportunity) such that people evaluate their illness experiences (Babrow, 2007; Mishel & Clayton, 2005) and manage illness uncertainty in various ways (Brashers, 2007).

Differences in Dyadic Appraisal, Coping, and Adjustment

There are several key differences that emerged from the APIM results. First, relational quality negatively influenced partners' (but not patients') perceptions of illness interference such that the better the perceived quality of the relationship, the less likely partners were to perceive that the patient's illness interfered in their lives (but not their perceptions of the illness interfering in the patient's life). Similarly, dyadic appraisal of illness interference negatively influenced partners' (but not patients') perceptions of receiving partner support. That is, the more partners perceived that the patient's illness interfered in their lives, the *less* support they perceived the patient provided for them. The idea that "we're in this together" can be an empowering perspective for couples managing chronic illness (Goldsmith, 2009; Kayser, Watson, & Andrade, 2007; Rohrbaugh et al., 2008); yet our findings suggest that a "we" perspective may be more relevant for partners than for patients. Partners' view, on the one hand, may be "because we have a great relationship, my partner's illness is not interfering in our lives," while on the other hand they may feel that "my partner's illness interferes in our lives; and I'm not feeling supported." The findings demonstrate that a lack of congruence in illness beliefs is one of the major relationship characteristics associated with chronic disease processes and outcomes (Fisher, 2006).

Another difference in dyadic appraisals is that regardless of perceived partner support, patients' and partners' perceptions of the patient's illness interfering in their lives negatively influenced patients' (but not partners') adjustment (i.e., management of their health condition). Additionally, support *from the patient* was a salient feature of partners' perceptions that they are managing the patient's chronic health condition, but not partners' perceptions that the patient is managing the health condition. Finally, although social support is an important component of managing chronic illnesses (Goldsmith, 2004; Revenson, Kayser, et al., 2005), partner support significantly predicted neither patients' perceptions of managing their health condition nor patients' perceptions of whether their partner was managing the (patient's) health condition. These findings should be explored further.

Implications, Limitations, and Future Research

Although couples in this study reported high-quality, supportive relationships, partner support did not function as expected. Researchers should continue examining dyadic coping variables that may influence adjustment (cf., Berg et al., 2008; Berg, Wiebe, & Butner, 2011; Merz et al., 2011). For example, although patients and partners may manage stress by sharing their worries and concerns with one another to obtain emotional, informational, and practical support (see Manne & Badr, 2010), even couples in close relationships report difficulty in talking to a partner about cancer-related or heart-related issues (see Goldsmith, 2009; Goldsmith, Miller, & Caughlin, 2007).

Perceived efficacy or ability to perform actions necessary to produce particular effects has been used to predict a variety of health-related outcomes (for reviews, see Holden, 1991; Strecher, Devillis, Becker, & Rosenstock, 1986). Empirical evidence links *disclosure* efficacy with likelihood of sharing health information (Greene, 2009; Greene et al., 2012), and the breadth, depth, and frequency of sharing heart-related information with a partner (Checton & Greene, 2012), and links *dyadic* efficacy with partners' ability to work together as a team to manage women's illness-related challenges (Sterba et al., 2007). Because a mismatch between appraisal and coping strategies may be problematic for adjustment (Berg & Upchurch, 2007), interventions to improve dyadic efficacy to communicate about health-related issues such as illness interfering in their lives may help couples better manage chronic illness.

Future research could also explore how couples' avoidance of certain illness-related topics influences adjustment. Strategically deciding not to disclose certain topics (e.g.,

recent blood test results) or avoiding others (e.g., the future) may be ways that individuals cope with the stressors surrounding illness, and partners are likely to differ in their topic avoidance appraisals (Venetis, Greene, Checton, & Magsamen-Conrad, in press; Venetis, Magsamen-Conrad, Checton, & Greene, 2014).

As with any research study, there are several limitations that must be considered. First, the predominantly Caucasian sample limits generalization to other groups. There are likely differences in how various cultural groups appraise chronic illness and its management (Charmaz, 2000). Second, the cross-sectional design does not take full advantage of Berg and Upchurch's (2007) model in terms of sociocultural, temporal coping (e.g., anticipatory coping, coping with treatment, daily management), and development-historical aspects (young, middle-aged, late adulthood) of chronic illness management. An improved study would track couples across time, including specific health indicators, as well as changes in appraisals, coping, and adjustment at diagnosis, during treatment, and daily management. Strengths of the study, however, are sample diversity in terms of types of chronic illnesses and that sample proportions approximate the most prevalent chronic illnesses (CDC, 2013).

Americans may be living longer than ever before (Federal Interagency Forum on Aging-Related Statistics, 2013), but many are also managing chronic health conditions that create stress for even the most stable relationships. Continued research must attend to the various facets of the illness experience. The present investigation examined dyadic appraisals, coping, and adjustment for couples managing a variety of chronic illnesses finding concordance in some areas but not others.

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Note

1. We conducted independent-samples *t* tests to examine age differences and the study variables using a median split (≤ age 52 and > age 52). Results indicated no significant differences in any study variables. One-way analysis of variances were conducted to test for differences in race for study variables. One significant race effect was found for relationship quality, $F(4, 573) = 4.37$, $p < .01$. Post hoc tests revealed that Caucasians reported higher relationship quality ($n = 419$; $M = 5.98$, $SD = 0.93$) compared with Asians ($n = 72$; $M = 5.52$, $SD = 0.90$) but not other groups. Additionally, one-way analysis of variances were conducted to test for mean differences in education for study variables. Results indicated no significant differences. Thus, in sum, demographic variables differences were fewer than could be expected by chance and therefore were not included in analyses except the gender differences reported.

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