Journal of Family Psychology

Depressive Symptoms and Mechanisms of Relational Turbulence as Predictors of Relationship Satisfaction Among Returning Service Members

Leanne K. Knobloch and Jennifer A. Theiss

Online First Publication, May 30, 2011. doi: 10.1037/a0024063

Journal of Family Psychology

0893-3200/11/$12.00 DOI: 10.1037/a0024063

Depressive Symptoms and Mechanisms of Relational Turbulence as Predictors of Relationship Satisfaction Among Returning Service Members

Leanne K. Knobloch
University of Illinois

Jennifer A. Theiss
Rutgers University

In contrast to romanticized portrayals of reunion after deployment, U.S. military personnel may contend with the harsh reality of both depressive symptoms and upheaval in their romantic relationships during the postdeployment transition. This study employed the relational turbulence model to evaluate mechanisms linking depressive symptoms with relationship satisfaction. Cross-sectional, self-report data were collected from 220 service members living in 27 states who had returned home from deployment within the past six months. As hypothesized, the negative association between depressive symptoms and relationship satisfaction was mediated by relational uncertainty and interference from partners. These findings advance scholarship on depressive symptoms and relational turbulence, and they also suggest guidelines for helping service members with depressive symptoms maintain satisfying romantic relationships upon reentry.

Keywords: interference from partners, military deployment, relational turbulence, relational uncertainty, relationship satisfaction

An idealized view of homecoming following military deployment depicts service members rushing blissfully into the arms of their romantic partner to live happily ever after (e.g., Wood, Scarville, & Gravino, 1995), but in reality, the process of reintegrating back into family life can be more emotionally taxing than deployment itself (Drummet, Coleman, & Cable, 2003; Mmari, Roche, Sudhinaraset, & Blum, 2009). Returning service members may feel distressed by their deployment experiences and disheartened by the changes that occurred at home (Bowling & Sherman, 2008; Faber, Willerton, Clymer, MacDermid, & Wiess, 2008). The challenges of reentry may take a toll on both the mental health and the relational health of military personnel (MacDermid Wadsworth, 2010). Indeed, deployed service members are at greater risk of experiencing both depressive symptoms (Nelson Goff, Crow, Reisbig, & Hamilton, 2007; Renshaw, Rodrigues, & Jones, 2008) and relationship distress (Milliken, Auchterloine, & Hoge, 2007; Peebles-Kleiger & Kleiger, 1994) during the 6 months after their return.

Although the postdeployment transition is a critical period of readjustment, questions persist about the processes that link military personnel's depressive symptoms with relationship satisfaction. Studies of both military couples (Nelson Goff et al., 2007) and civilian couples (Whisman, 2001) demonstrate that individuals who are suffering from depressive symptoms tend to be dissatisfied within romantic relationships, but scholars have yet to pinpoint *why* depressive symptoms and relationship distress are linked. Hence, calls have mounted for research on mediators of the association between depressive symptoms and relationship satisfaction (e.g., Davila, 2001; Whisman, 2001; see also Rehman, Gollan, & Mortimer, 2008). Work evaluating mediation is especially important in the domain of reintegration after deployment because of the suicide risk among returning military personnel (U.S. Army, 2010).

The *relational turbulence model* is a theoretical framework that may be particularly useful for explaining the connection between service members' depressive symptoms and their relationship satisfaction upon reunion. The model has shed light on transitions as diverse as establishing commitment, receiving an infertility diagnosis, and managing breast cancer (Solomon, Weber, & Steuber, 2010). Recent results imply that the model may apply to reintegration following deployment as well (Knobloch & Theiss, 2011).

Testing the model's logic in the context of the postdeployment transition would contribute to the literature by (a) evaluating potential pathways connecting depressive symptoms and relationship satisfaction, (b) considering whether

Leanne K. Knobloch, Department of Communication, University of Illinois; Jennifer A. Theiss, Department of Communication, Rutgers University.

Data collection procedures were approved by the Institutional Review Boards of the University of Illinois and Rutgers University. The authors are grateful to Jennifer Bert, Emmelyn Joy, Amy Lindgren, Kimberly Pusateri, and Larissa Tosi.

Correspondence concerning this article should be addressed to Leanne K. Knobloch, Department of Communication, University of Illinois, 1207 West Oregon Street, Room 225, Urbana, IL 61801. E-mail: knobl@illinois.edu

the model has utility for illuminating the reunion period, (c) broadening research on the mental health of returning service members, which has tended to focus on posttraumatic stress disorder (e.g., Monson, Taft, & Fredman, 2009), and (d) identifying recommendations to help military personnel with depressive symptoms preserve their romantic relationship if they experience turmoil during reentry. Accordingly, we draw on the model to identify and investigate mediators of the link between the depressive symptoms and relationship satisfaction of returning service members.

Depressive Symptoms and Relational Turbulence

Depressive symptoms, which include irritability, fatigue, energy loss, lingering feelings of sadness, changes in appetite, and thoughts of suicide (National Institute of Mental Health, 2008), are pervasive among service members following a tour of duty (Milliken et al., 2007; Nelson Goff et al., 2007; Renshaw et al., 2008).[1] Depressive symptoms also are closely tied to relationship distress. For example, Whisman's (2001) meta-analysis of 26 studies ($N > 6{,}400$ participants) revealed a negative correlation between depressive symptoms and marital satisfaction for both men ($r = -.37$, $p < .001$) and women ($r = -.42$, $p < .001$). Similar associations exist among military couples (Nelson Goff et al., 2007; Renshaw et al., 2008; Sayers, Farrow, Ross, & Oslin, 2009).

Notably, the connection between depressive symptoms and relationship distress is bidirectional in nature. Findings from two longitudinal studies of civilian couples documented reciprocal associations over time such that (a) heightened depressive symptoms predicted subsequent declines in marital satisfaction, and (b) diminished marital satisfaction predicted subsequent increases in depressive symptoms (Davila, Karney, Hall, & Bradbury, 2003; Kouros, Papp, & Cummings, 2008). Accordingly, people's depressive symptoms are both a foundation and an outcome of relationship dissatisfaction.

The relational turbulence model theorizes about the former pathway by offering an account for why service members' depressive symptoms may generate relationship dissatisfaction during the postdeployment transition. The model defines a *transition* as a period of discontinuity marked by changes in how individuals define their partnership and how they act toward each other (Knobloch, 2007). It characterizes *relational turbulence* as people's tendency to be cognitively, emotionally, and behaviorally reactive to relationship circumstances (Solomon & Theiss, 2008; Solomon et al., 2010). Moreover, it delineates two origins of turmoil during times of transition: relational uncertainty and interference from partners.

Relational Uncertainty as a Foundation of Turbulence

The model identifies relational uncertainty as one mechanism that may give rise to dyadic distress during transitional periods (Knobloch & Theiss, 2010; Solomon & Knobloch, 2004). *Relational uncertainty*, defined as the degree of confidence people have in their perceptions of involvement within interpersonal relationships, emerges from a trio of sources (Berger & Bradac, 1982; Knobloch & Solomon, 1999). *Self uncertainty* encompasses the questions individuals have about their own participation in a relationship ("How certain am I about my view of this relationship?"). *Partner uncertainty* includes the ambiguity people experience about their partner's participation in a relationship ("How certain am I about my partner's view of this relationship?"). *Relationship uncertainty* refers to the questions that arise about the state of the relationship as a whole ("How certain am I about the future of this relationship?"). Relational uncertainty, then, is comprised of self, partner, and relationship sources of ambiguity.

The model implies that relational uncertainty is a reason why service members with depressive symptoms experience relationship dissatisfaction upon reentry. Individuals suffering from depressive symptoms tend to question their partner's commitment, to doubt the viability of their relationship, to feel insecure about whether their romance will continue, and to view assurance from their partner with skepticism (e.g., Jacobson, 2007; Joiner & Timmons, 2009; Katz & Beach, 1997). By extension, service members with depressive symptoms may be vulnerable to relational uncertainty during the postdeployment transition. They may confront questions about whether partners have grown apart during the tour of duty, if they can rekindle their romance, whether infidelity occurred, and if both parties are motivated to maintain the relationship (e.g., Bowling & Sherman, 2008; Peebles-Kleiger & Kleiger, 1994; Vormbrock, 1993). All of these questions are likely to be detrimental to the relationship satisfaction of service members during reintegration (e.g., Knobloch & Theiss, 2011). If military personnel with depressive symptoms are unsure about the nature of their relationship, and thereby experience dyadic distress, then relational uncertainty may mediate the association between service members' depressive symptoms and their relationship satisfaction.

Depressive symptoms and relational uncertainty are positively correlated among civilian couples (Knobloch & Knobloch-Fedders, 2010), but no research has investigated the link between depressive symptoms and relational uncertainty among military couples. On the other hand, ample evidence suggests that relational uncertainty predicts both turmoil and relationship dissatisfaction. Civilian couples experiencing relational uncertainty appraise their partner's behavior to be more irritating (Theiss & Knobloch, 2009), judge hurt to be more intense (Theiss, Knobloch, Checton, & Magsamen-Conrad, 2009), feel more negative emotion (Knobloch, Miller, & Carpenter, 2007), and report less relationship satisfaction (Knobloch, 2008a; Knobloch &

[1] According to the National Institute of Mental Health (2008), the most common types of clinical depressive disorders are major depressive disorder (characterized by acute and debilitating depressive symptoms) and dysthymic disorder (characterized by less severe but long-lasting depressive symptoms). This investigation attends to the full spectrum of symptom severity rather than clinically diagnosed disorders.

Knobloch-Fedders, 2010). Military couples grappling with relational uncertainty during the postdeployment transition view their romantic relationship as more turbulent and are less satisfied with their partnership (Knobloch & Theiss, 2011). These findings imply that relational uncertainty may underlie the relationship dissatisfaction experienced by service members with depressive symptoms during reentry.

Interference From Partners as a Foundation of Turbulence

The relational turbulence model characterizes interference from partners as a second mechanism that may account for turmoil during times of transition (Knobloch & Theiss, 2010; Solomon & Knobloch, 2004). Following Berscheid (1991), the model proposes that romantic relationships develop as partners mesh their daily lives. Individuals who succeed in forming a long-term partnership find efficient ways to integrate their everyday behaviors (e.g., routines for eating, sleeping, working, exercising, managing a household, caring for children, etc.). A change in relationship circumstances, however, can wreak havoc on previously smooth schedules. *Interference from partners* occurs when partners disrupt an individual's routines in ways that make it harder to accomplish goals ("My car doesn't fit in the garage when you leave the trash bins out." or "Hurry up or we'll be late!"). A shift in daily schedules should spark interference from partners until people learn how to facilitate (rather than disrupt) each other's routines.

The relational turbulence model suggests that interference from partners may account for why service members experiencing depressive symptoms are unhappy with their romantic relationship. Individuals with depressive symptoms tend to perceive interactions with their romantic partner to be disruptive, intrusive, and negatively valenced (for reviews, see Beach, Sandeen, & O'Leary, 1990; Rehman et al., 2008). The postdeployment transition, in particular, may provide an abundance of opportunities for military couples to interfere with each other's daily routines. Service members returning home from a tour of duty must assimilate into the new activities, schedules, and patterns that emerged during his or her absence (Bowling & Sherman, 2008; Faber et al., 2008; Wiens & Boss, 2006). Moreover, military couples must reassign household chores, renegotiate autonomy and control, and reestablish boundaries for disclosure (Drummet et al., 2003; Sahlstein, Maguire, & Timmerman, 2009; Sayers, 2011). Service members suffering from depressive symptoms may feel overwhelmed by the changes, have difficulty fitting into family life, and feel less satisfied with their romantic relationship (e.g., Bowling & Sherman, 2008; Nelson Goff et al., 2007; Wood et al., 1995). In other words, the relational turbulence model implies that service members who are experiencing depressive symptoms may find their relationship dissatisfying due to frequent disruptions by partners.

Although scholars have not yet examined the connection between depressive symptoms and interference from partners, research suggests that interference from partners predicts relational turbulence in various forms. Civilian couples experiencing interference from partners judge irritating circumstances to be more severe (Theiss & Solomon, 2006b), experience more anger, sadness, fear, and jealousy (Knobloch & Theiss, 2010; Theiss & Solomon, 2006a), and communicate with their partner in less affiliative ways (Knobloch, 2008b). Military couples who encounter interference from partners during the postdeployment transition judge their partnership to be more turbulent and less satisfying (Knobloch & Theiss, 2011). These results provide initial evidence that interference from partners may explain why service members with depressive symptoms are dissatisfied with their romantic relationship upon reunion.

Relational Uncertainty and Interference From Partners as Mediators

If service members grappling with depressive symptoms are vulnerable to doubts about their romantic relationship and to disruptions from their partner, then relational uncertainty and interference from partners may mediate the link between depressive symptoms and relationship dissatisfaction. Only one study has examined mediation: Knobloch and Knobloch-Fedders (2010) found that relational uncertainty mediated the association between depressive symptoms and relationship satisfaction in a sample of civilian couples, but they did not examine interference from partners. Our investigation advances the literature by testing both mechanisms in the context of the postdeployment transition.

Four hypotheses follow from our logic. Service members' depressive symptoms should be negatively associated with their relationship satisfaction (Hypothesis 1) but positively associated with their relational uncertainty and interference from partners (Hypothesis 2). In turn, service members' relational uncertainty and interference from partners should be negatively associated with their relationship satisfaction (Hypothesis 3) and should mediate the negative association between their depressive symptoms and their relationship satisfaction (Hypothesis 4).

Method

We evaluated the hypotheses by collecting online, cross-sectional, self-report data from U.S. service members who had returned home from deployment within the past six months. We recruited participants from March to July 2010 by (a) emailing announcements to family readiness officers, chaplains, and military personnel across the country; (b) circulating flyers at reintegration workshops; and (c) posting to online forums designed for military families. Individuals were eligible to complete the study if (a) they were currently involved in a romantic relationship, (b) they had returned home from deployment during the past six months, and (c) they had access to a secure and private Internet connection. Eligibility for dual-deployment couples was restricted to one partner to avoid dependence in the data.

The sample included 220 individuals (185 males, 35 females) residing in 27 states who completed all of the measures. They were affiliated with the U.S. National Guard

(64%), the Army (28%), the Air Force (3%), the Navy (3%), and the Marines (2%). Their military status was active duty (54%), reserves (38%), inactive ready reserves (2%), discharged (2%), retired (1%), or other (3%). On average, service members had been deployed for 11.08 months (range = 1 month to 24 months, SD = 2.88 months) and home for 3.04 months (range = less than 1 week to 6 months, SD = 1.83 months). Slightly more than half of the sample (57%) had completed multiple deployments, and 22% reported participating in a postdeployment program, workshop, or support group geared toward military couples.

Participants ranged from 18 to 57 years of age (M = 32.69 years, SD = 8.45 years). Individuals were Caucasian (80%), African American (6%), Hispanic (5%), Asian (3%), Native American (3%), and other (3%). Most participants were married (83%), but others were casually dating (3%), seriously dating (11%), or engaged to be married (3%). Their romantic relationships averaged 8.06 years in length (SD = 6.38 years). Most individuals lived with their romantic partner (89%) and were parents (59%). Approximately 7% were part of a dual-career military couple in which both partners had returned home from deployment during the past six months.

The online questionnaire began by collecting demographic information. Then, it solicited responses to closed-ended items measuring the independent and dependent variables. A final page invited participants to email a research account with a generic survey completion code and their residential mailing address to receive a $15 gift card from a national retailer.

Measures[2]

Depressive symptoms. The Center for Epidemiologic Studies Depression Scale (CES-D) was designed as a screening tool for community populations and possesses desirable measurement properties (for review, see Radloff & Locke, 2008; Wood, Taylor, & Joseph, 2010). Twenty items ask people to report their feelings during the past week (1 = *rarely*, 4 = *most of the time*). Sample items include: (a) I felt depressed, (b) I felt like everything I did was an effort, and (c) I thought my life had been a failure. A total score for each participant was computed by summing the responses across items (range = 0.00 to 51.00, M = 13.00, SD = 11.37, α = .93). In this sample, 36% of service members reported scores ≥16.00, which is the traditional cut-off value suggesting the potential for clinical depression (Radloff & Locke, 2008).

Relational uncertainty. Self, partner, and relationship sources of relational uncertainty were measured using brief versions of Knobloch and Solomon's (1999) scales. Individuals responded to items prefaced by the stem "How certain are you about . . . ?" (1 = *completely or almost completely uncertain*, 6 = *completely or almost completely certain*). All items were reverse-scored such that higher values represented more relational uncertainty. The variables were computed as the average of responses.

Self uncertainty included four items: (a) how you feel about your relationship, (b) your goals for the future of your relationship, (c) your view of your relationship, and (d) how important your relationship is to you (M = 1.88, SD = 1.25, α = .96). *Partner uncertainty* contained four parallel items: (a) how your partner feels about your relationship, (b) your partner's goals for the future of your relationship, (c) your partner's view of your relationship, and (d) how important your relationship is to your partner (M = 1.91, SD = 1.26, α = .96). Finally, *relationship uncertainty* involved four items: (a) the current status of your relationship, (b) how you can or cannot behave around your partner, (c) the definition of your relationship, and (d) the future of your relationship (M = 2.00, SD = 1.28, α = .95).

Interference from partners. A brief version of Solomon and Knobloch's (2001) scale operationalized interference from partners. Participants completed six items (1 = *strongly disagree*, 6 = *strongly agree*): (a) my partner interferes with the plans I make, (b) my partner causes me to waste time, (c) my partner interferes with my career goals, (d) my partner interferes with the things I need to do each day, (e) my partner interferes with whether I achieve the everyday goals I set for myself (e.g., goals for exercise, diet, entertainment), and (f) my partner makes it harder for me to schedule my activities. Responses were averaged to form a composite scale (M = 1.81, SD = 1.02, α = .92).

Relationship satisfaction. A scale developed by Fletcher, Simpson, and Thomas (2000) provided a conceptually pure measure of relationship satisfaction coupled with high reliability and face validity. Individuals responded to three items introduced by the stem "At the current time, how . . .?" (1 = *not at all*, 7 = *extremely*): (a) satisfied are you with your relationship, (b) content are you with your relationship, and (c) happy are you with your relationship. The scale was calculated as the average of responses (M = 5.81, SD = 1.33, α = .96).

Results

All analyses were conducted with N = 220 service members, α = .05, and two-tailed tests of statistical significance. The estimated power to detect medium effects (r = .30) exceeded .99 (Cohen, Cohen, West, & Aiken, 2003). Data analysis proceeded in three steps: (a) preliminary analyses considered individual differences and bivariate associations, (b) hierarchical regression models tested the hypotheses, and (c) bootstrapping procedures evaluated mediation.

In a first preliminary analysis, independent samples t tests compared males to females, participants living with their partner to those not living with their partner, and parents to nonparents. Women (M = 2.52, SD = 1.60) reported more self uncertainty than men (M = 1.76, SD = 1.13), $t(218)$ = 2.69, p = .010. Service members who lived apart from their romantic partner experienced more self, partner, and relationship uncertainty (M_{su} = 2.90, SD_{su} = 1.75; M_{pu} = 2.65, SD_{pu}= 1.74; M_{ru} = 2.73, SD_{ru} = 1.72) than those who lived in the same residence

[2] Confirmatory factor analyses were conducted to verify the unidimensionality of the closed-item scales.

(M_{su} = 1.76, SD_{su} = 1.11; M_{pu} = 1.81, SD_{pu} = 1.16; M_{ru} = 1.91, SD_{ru} = 1.19), $t_{su}(218) = 3.11$, $p = .005$, $t_{pu}(218) = 2.31$, $p = .029$, $t_{ru}(218) = 2.27$, $p = .031$. Moreover, people who lived apart from their romantic partner ($M = 4.79$, $SD = 1.93$) were less satisfied with their relationship ($M = 5.93$, $SD = 1.19$), $t(218) = -2.83$, $p = .009$. Participants with children ($M = 1.72$, $SD = 1.11$) experienced less self uncertainty than those without children ($M = 2.11$, $SD = 1.39$), $t(218) = -2.28$, $p = .024$. Parents ($M = 5.96$, $SD = 1.24$) also reported more relationship satisfaction than nonparents ($M = 5.58$, $SD = 1.44$), $t(218) = 2.10$, $p = .037$. These results suggest that respondent's sex, residential status, and parental status should be included as covariates in the tests of the hypotheses.

A second preliminary analysis compared people's reports of the substantive variables by features of their deployment. Service members who were part of a dual-deployment couple ($M = 2.33$, $SD = 1.38$) reported more interference from partners than those who were not ($M = 1.77$, $SD = 0.98$), $t(218) = 2.10$, $p = .037$. No differences were apparent for (a) military branch, (b) military status, (c) completion of one versus multiple deployments, or (d) participation in a post-deployment program for military couples.

A third preliminary analysis documented zero-order correlations (see Table 1).[3] Results demonstrated that the length of time service members had been home was positively correlated with self and partner uncertainty and negatively correlated with relationship satisfaction. The three sources of relational uncertainty were strongly positively correlated.[4] Depressive symptoms, relational uncertainty, and interference from partners were positively associated with each other and negatively associated with relationship satisfaction.[5]

We used hierarchical multiple regression techniques to evaluate the hypotheses. On the first step of the model, three dummy-coded variables representing respondent's sex (0 = males, 1 = females), whether the service member lived with his or her partner (0 = no, 1 = yes), and parental status (0 = no, 1 = yes) were entered to control for the effects apparent from the first preliminary analysis. The second step of the model contained two deployment-related covariates: (a) whether the service member was part of a dual-deployment couple (0 = no, 1 = yes), and (b) the length of time home from deployment. The hypotheses were tested on subsequent steps.

A first set of predictions anticipated that depressive symptoms are negatively associated with relationship satisfaction (Hypothesis 1), but positively associated with relational uncertainty and interference from partners (Hypothesis 2). Each dependent variable was regressed onto (a) the individual-focused covariates on Step 1, (b) the deployment-focused covariates on Step 2, and (c) people's reports of depressive symptoms on Step 3. Findings indicated that female service members reported more self uncertainty than male service members, those who were living with their partner reported more relationship satisfaction and less relational uncertainty than those who were not living with their partner, and service members who were part of a dual-deployment couple reported less self uncertainty than service members who were not (see Table 2). Moreover, the number of months service members had been home was negatively associated with relationship satisfaction. On the third step, depressive symptoms explained between 17% and 25% of additional variance in the dependent variables. The direction of the coefficients was consistent with the predictions.

Hypothesis 3 anticipated that relational uncertainty and interference from partners are negatively associated with relationship satisfaction. To test this prediction, the hierarchical regression analyses for Hypothesis 1 were repeated, but one source of relational uncertainty or interference from partners was substituted for people's depressive symptoms on the third step. Self uncertainty ($\Delta R^2 = .49$, $\beta = -.76$, $p < .001$), partner uncertainty ($\Delta R^2 = .39$, $\beta = -.65$, $p < .001$), relationship uncertainty ($\Delta R^2 = .49$, $\beta = -.72$, $p < .001$), and interference from partners ($\Delta R^2 = .31$, $\beta = -.56$, $p < .001$) were all negatively associated with relationship satisfaction beyond the variance explained by the covariates. The total R^2 statistics ranged from .42 to .61. These findings support Hypothesis 3.

Hypothesis 4 predicted that relational uncertainty and interference from partners mediate the negative association between depressive symptoms and relationship satisfaction. As a first step in evaluating the multiple mediation model, the regression analyses for Hypothesis 1 were repeated with (a) depressive symptoms entered on the third step, and (b) all three sources of relational uncertainty and interference from partners entered simultaneously on the fourth step.[6] Results indicated that the covariates of respondent's sex ($\beta = .15$, $p = .004$), dual-deployment status ($\beta = -.11$, $p = .02$), and the length of time service members had been home ($\beta = -.13$, $p = .002$) predicted relationship satisfaction on the fourth step beyond the variance explained by the substantive variables. Relational uncertainty and interference from partners accounted for 39% of additional variance beyond the covariates and depressive symptoms (total

[3] Length of deployment was not correlated with any of the variables included in Table 1.

[4] Self, partner, and relationship uncertainty are conceptually overlapping but distinct constructs (Berger & Bradac, 1982; Knobloch & Solomon, 1999). The magnitude of the positive correlations among the three sources of relational uncertainty in this study is comparable to previous research within both courtship (Knobloch, 2007) and marriage (Knobloch, 2008a). Results of subsidiary confirmatory factor analysis indicated that the 12 items did not form a unidimensional factor; these findings also are consistent with all previous measurement analyses (Knobloch, 2010). Hence, the three sources of relational uncertainty were retained as separate variables (following Knobloch, 2007; Knobloch & Solomon, 1999).

[5] Confirmatory factor analytic results revealed that relationship satisfaction did not form a unidimensional factor with self, partner, or relationship uncertainty or interference from partners.

[6] The degree of multicollinearity in this analysis was high but within acceptable limits according to the tolerance and variance inflation factor statistics.

Table 1
Bivariate Correlations

	V1	V2	V3	V4	V5	V6	V7
V1: Length of time home	—						
V2: Depressive symptoms	.11	—					
V3: Self uncertainty	.17*	.45***	—				
V4: Partner uncertainty	.15*	.51***	.82***	—			
V5: Relationship uncertainty	.13	.52***	.91***	.88***	—		
V6: Interference from partners	.03	.48***	.49***	.41***	.54***	—	
V7: Relationship satisfaction	−.23***	−.46***	−.75***	−.69***	−.74***	−.59***	—

Note. $N = 220$.
* $p < .05$. *** $p < .001$.

$R^2 = .67$). Self uncertainty ($\beta = -.41$, $p < .001$) and interference from partners ($\beta = -.26$, $p < .001$) were negative predictors of relationship satisfaction. The magnitude of the association between people's depressive symptoms and their relationship satisfaction was notably diminished in size (Step 3: $\beta = -.42$, $p < .001$; Step 4: $\beta = .01$, *ns*).

We selected bootstrapping procedures for a formal test of mediation because they provide a straightforward and parsimonious way to evaluate indirect effects (Preacher & Hayes, 2008). Two effects were calculated following guidelines offered by Preacher and Hayes (2008): (a) the *total indirect effect* evaluates the multiple mediation model, and (b) the *specific indirect effects* document the extent to which each mediator conveys an effect (conditional on the other predictors in the model). The analyses employed 5,000 bootstrap samples with 95% bias corrected and accelerated confidence intervals. The estimate of the standardized total indirect effect confirmed mediation, −.42, $p < .001$, 95% CI [−.55, −.30]. The estimates of the standardized specific indirect effects revealed that both self uncertainty, −.18, $p < .001$, 95% CI [−.29, −.08], and interference from partners, −.12, $p < .001$, 95% CI [−.24, −.06], carried the mediation. These findings are compatible with Hypothesis 4.[7]

Discussion

This study utilized the relational turbulence model to deduce that relational uncertainty and interference from partners may explain why service members with depressive symptoms are dissatisfied with their romantic relationship during the postdeployment transition. Cross-sectional data were collected from 220 service members living in 27 states who had returned home from deployment during the past six months. As predicted, service members experiencing depressive symptoms reported less relationship satisfaction and more relational uncertainty and interference from partners. Self uncertainty and interference from partners mediated the negative association between service members' depressive symptoms and their relationship satisfaction.

Implications of the Findings

Our investigation extends prior work emphasizing the challenges of the postdeployment transition for service members reintegrating into family life (e.g., Drummet et al., 2003; Sayers, 2011; Wiens & Boss, 2006). Not only do returning service members and their romantic partners face the tasks of rejuvenating their bonds and renegotiating their roles (Bowling & Sherman, 2008; Gambardella, 2008; Peebles-Kleiger & Kleiger, 1994), but military couples may find these tasks to be especially draining if they had constructed romanticized illusions of life together following deployment (e.g., Wood et al., 1995). Our data imply that the dyadic distress experienced by service members during the postdeployment transition may be linked with depressive symptoms, relational uncertainty, and interference from partners.

An intriguing additional predictor was the length of time service members had been home from deployment, which was negatively associated with relationship satisfaction beyond the variance explained by the substantive variables. Of course, our cross-sectional results do not support conclusions about change over time, but they do echo recent findings that Army soldiers report a fourfold increase in interpersonal conflict three to six months following deployment compared to immediately after returning home (Milliken et al., 2007). Perhaps service members experience an initial honeymoon period that gives way to disillusionment during reentry (e.g., Wood et al., 1995). If so, then service members, romantic partners, and mental health professionals should prepare for a delayed onset of dyadic distress during the reunion phase.

This study advances scholarship on depressive symptoms as well. Although researchers have petitioned for work examining why depressive symptoms are comorbid with relationship distress (Davila, 2001; Whisman, 2001), attempts to identify mediators have garnered only limited success. For example, findings do not support mediation for negative feedback-seeking (Weinstock & Whisman, 2004) or attributions for a partner's behavior (Gordon, Friedman, Miller, & Gaertner, 2005). Other mechanisms appear to function as mediators for women but not men, including self-esteem (Culp & Beach, 1998), negatively valenced support behaviors (Davila, Bradbury, Cohan, & Tochluk, 1997), and self-silencing (Uebelacker, Courtnage, & Whisman, 2003). Our findings, although limited by the cross-

[7] Subsidiary analyses confirmed mediation for both males and females.

Table 2
The Regression of Relationship Satisfaction, Relational Uncertainty, or Interference From Partners Onto Depressive Symptoms

	Relationship satisfaction	Self uncertainty	Partner uncertainty	Relationship uncertainty	Interference from partners
Step One R^2	.07**	.11***	.05*	.05*	.01
Respondent's sex β	−.04	.18**	.08	.10	.06
Residential status β	.24**	−.25***	−.20**	−.20**	−.09
Parental status β	.04	−.01	.01	.04	.00
Step Two ΔR^2	.04**	.03*	.02	.02	.01
Dual-deployment status β	−.06	−.16*	−.08	−.13	.14
Length of time home β	−.20**	.11	.12	.10	.02
Step Three ΔR^2	.17***	.18***	.23***	.25***	.22***
Depressive symptoms β	−.42***	.43***	.49***	.51***	.48***
Total R^2	.28	.32	.30	.32	.24

Note. $N = 220$. Cell entries are R^2 or ΔR^2 statistics and standardized coefficients.
* $p < .05$. ** $p < .01$. *** $p < .001$.

sectional nature of the data, offered evidence in favor of self uncertainty and interference from partners as mediators. In other words, individuals suffering from depressive symptoms may be unsure about the nature of their relationship (Jacobson, 2007; Knobloch & Knobloch-Fedders, 2010) and prone to disruptions from their partner (Beach et al., 1990, pp. 77–78), and in turn, be dissatisfied with their relationship.

Our results move the relational turbulence model forward in three ways. First, our data cohere with prior work identifying self uncertainty as the source of ambiguity that is especially sensitive to dyadic distress (e.g., Knobloch, 2008a; Knobloch & Knobloch-Fedders, 2010). Self uncertainty, by definition, occurs when people are unsure if they are motivated to preserve the relationship (Knobloch, 2010), which is why it may be a particular harbinger of dissatisfaction. More broadly, our findings hint that the model has value for illuminating how service members negotiate romantic partnerships during the postdeployment transition. Recent work on reintegration has drawn from frameworks such as ambiguous loss (Faber et al., 2008), relational dialectics theory (Sahlstein et al., 2009), and role-exit theory (Gambardella, 2008). The relational turbulence model, with its unique focus on transitions, appears viable for understanding reentry as well. Third, this study is the first to consider depressive symptoms under the rubric of the model. Depressive symptoms were closely tied to both relational uncertainty and interference from partners, so a promising next step is to incorporate other aspects of mental health into the model's logic. Posttraumatic stress disorder is especially relevant to reentry after deployment (Monson et al., 2009), has important ramifications for the well-being of romantic relationships (Renshaw et al., 2008), and is likely to escalate the challenges of the reunion period (Sayers, 2011). A logical extension of this study is to consider posttraumatic stress disorder through the lens of the relational turbulence model.

We have alluded to the clinical ramifications of our results throughout this section, but several ideas merit extra emphasis. Of course, service members and romantic partners should be vigilant for signs of depressive symptoms. If military personnel do experience depressive symptoms, our findings suggest that relational damage may be attenuated if couples work through issues of relational uncertainty and devise ways to avoid disrupting daily routines. Perhaps service members with depressive symptoms who prepare themselves for the stressors of reentry into family life (e.g., Bowling & Sherman, 2008) may fare better during reintegration.

Limitations and Directions for Future Research

The conclusions of this study are tempered by a variety of limitations. Chief among them is the cross-sectional research design, which does not permit claims about time order or causality. The relational turbulence model characterizes depressive symptoms, relational uncertainty, and interference from partners as predictors of people's relationship satisfaction, but the reverse associations may operate as well. Indeed, when individuals experience declines in relationship satisfaction, they report subsequent increases in depressive symptoms (e.g., Davila et al., 2003). Experimental and longitudinal data are required to distinguish the direction of any causal pathways.

Other weaknesses stem from sampling and measurement issues. For example, service members were recruited via convenience sampling rather than random sampling. The sample was relatively homogenous in terms of race (80% Caucasian), sex (84% male), and military branch (64% National Guard and 28% Army). Additional research is necessary to evaluate whether the findings generalize to female service members, minority service members, and Naval, Air Force, and Marine service members. Second, the sample contained responses only from deployed service members and not at-home partners. Dyadic data is important for understanding the interplay among depressive symptoms, relational uncertainty, interference from partners, and relationship satisfaction for both members of military couples. Third, people's reports of depressive symptoms are not equivalent to clinical diagnoses. Structured clinical interviews are needed to render insights about how individuals

suffering from depressive disorders negotiate romantic relationships.

More broadly, future work is needed to examine how the skills that may boost the resiliency of service members during deployment may impede resiliency during reintegration (e.g., Gambardella, 2008; Sahlstein et al., 2009; Vormbrock, 1993). Military couples who follow recommendations to avoid discussing sensitive topics during deployment so that service members are not distracted from warzone duties (e.g., McNulty, 2005) may find themselves vulnerable to relational uncertainty upon reunion. Similarly, military couples who thrive during deployment by becoming self-reliant (e.g., Gambardella, 2008) may open the door to frequent disruptions during homecoming. Both patterns of behavior may be adaptive during deployment but counterproductive afterward. Accordingly, an important avenue for inquiry is to evaluate the efficacy of the coping strategies that military couples enact across the deployment cycle.

References

Beach, S. R. H., Sandeen, E. E., & O'Leary, K. D. (1990). *Depression in marriage.* New York: Guilford Press.

Berger, C. R., & Bradac, J. J. (1982). *Language and social knowledge: Uncertainty in interpersonal relationships.* London: Edward Arnold.

Berscheid, E. (1991). The Emotion-in-Relationships Model: Reflections and update. In W. Kessen, A. Ortony, & F. Craik (Eds.), *Memories, thoughts, and emotions: Essays in honor of George Mandler* (pp. 323–335). Hillsdale, NJ: Erlbaum.

Bowling, U. B., & Sherman, M. D. (2008). Welcoming them home: Supporting service members and their families in navigating the tasks of reintegration. *Professional Psychology: Research and Practice, 39,* 451–458. doi:10.1037/0735–7028.39.4.451

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.

Culp, L. N., & Beach, S. R. H. (1998). Marriage and depressive symptoms: The role and bases of self-esteem differ by gender. *Psychology of Women Quarterly, 22,* 647–663. doi:10.1111/j.1471–6402.1998.tb00183.x

Davila, J. (2001). Paths to unhappiness: The overlapping courses of depression and romantic dysfunction. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 71–87). Washington, DC: American Psychological Association.

Davila, J., Bradbury, T. N., Cohan, C. L., & Tochluk, S. (1997). Marital functioning and depressive symptoms: Evidence for a stress generation model. *Journal of Personality and Social Psychology, 73,* 849–861. doi:10.1037/0022–3514.73.4.849

Davila, J., Karney, B. R., Hall, T., & Bradbury, T. N. (2003). Depressive symptoms and marital satisfaction: Within-subject associations and the moderating effects of gender and neuroticism. *Journal of Family Psychology, 17,* 557–570. doi:10.1037/0893–3200.17.4.557

Drummet, A. R., Coleman, M., & Cable, S. (2003). Military families under stress: Implications for family life education. *Family Relations, 52,* 279–287. doi:10.1111/j.1741–3729.2003.00279.x

Faber, A. J., Willerton, E., Clymer, S. R., MacDermid, S. M., & Weiss, H. M. (2008). Ambiguous absence, ambiguous presence: A qualitative study of military reserve families in wartime. *Journal of Family Psychology, 22,* 222–230. doi:10.1037/0893–3200.22.2.222

Fletcher, G. J. O., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin, 26,* 340–354. doi:10.1177/0146167200265007

Gambardella, L. C. (2008). Role-exit theory and marital discord following extended military deployment. *Perspectives in Psychiatric Care, 44,* 169–174. doi:10.1111/j.1744–6163.2008.00171.x

Gordon, K. C., Friedman, M. A., Miller, I. W., & Gaertner, L. (2005). Marital attributions as moderators of the marital discord-depression link. *Journal of Social and Clinical Psychology, 24,* 876–893. doi:10.1521/jscp.2005.24.6.876

Jacobson, J. A. (2007). The relationship among causal uncertainty, reassurance seeking, and dysphoria. *Journal of Social and Clinical Psychology, 26,* 922–939. doi:10.1521/jscp.2007.26.8.922

Joiner, T. E., Jr., & Timmons, K. A. (2009). Depression in its interpersonal context. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (2nd ed., pp. 322–339). New York: Guilford Press.

Katz, J., & Beach, S. R. H. (1997). Romance in the crossfire: When do women's depressive symptoms predict partner relationship dissatisfaction? *Journal of Social and Clinical Psychology, 16,* 243–258. doi:10.1521/jscp.1997.16.3.243

Knobloch, L. K. (2007). Perceptions of turmoil within courtship: Associations with intimacy, relational uncertainty, and interference from partners. *Journal of Social and Personal Relationships, 24,* 363–384. doi:10.1177/0265407507077227

Knobloch, L. K. (2008a). The content of relational uncertainty within marriage. *Journal of Social and Personal Relationships, 25,* 467–495. doi:10.1177/0265407508090869

Knobloch, L. K. (2008b). Extending the Emotion-in-Relationships Model to conversation. *Communication Research, 35,* 822–848. doi:10.1177/0093650208324273

Knobloch, L. K. (2010). Relational uncertainty and interpersonal communication. In S. W. Smith & S. R. Wilson (Eds.), *New directions in interpersonal communication research* (pp. 69–93). Thousand Oaks, CA: Sage.

Knobloch, L. K., & Knobloch-Fedders, L. M. (2010). The role of relational uncertainty in depressive symptoms and relationship quality: An actor-partner interdependence model. *Journal of Social and Personal Relationships, 27,* 137–159. doi:10.1177/0265407509348809

Knobloch, L. K., Miller, L. E., & Carpenter, K. E. (2007). Using the relational turbulence model to understand negative emotion within courtship. *Personal Relationships, 14,* 91–112. doi:10.1111/j.1475–6811.2006.00143.x

Knobloch, L. K., & Solomon, D. H. (1999). Measuring the sources and content of relational uncertainty. *Communication Studies, 50,* 261–278.

Knobloch, L. K., & Theiss, J. A. (2010). An actor-partner interdependence model of relational turbulence: Cognitions and emotions. *Journal of Social and Personal Relationships, 27,* 595–619. doi:10.1177/0265407510368967

Knobloch, L. K., & Theiss, J. A. (2011). *Relational turbulence during the post-deployment transition: Relational maintenance, partner responsiveness, and appraisals of turmoil.* Manuscript submitted for publication.

Kouros, C. D., Papp, L. M., & Cummings, E. M. (2008). Interrelations and moderators of longitudinal links between marital satisfaction and depressive symptoms among couples in established relationships. *Journal of Family Psychology, 22,* 667–677. doi:10.1037/0893–3200.22.5.667

MacDermid Wadsworth, S. M. (2010). Family risk and resilience in the context of war and terrorism. *Journal of Marriage and Family, 72,* 537–556. doi:10.1111/j.1741–3737.2010.00717.x

McNulty, P. A. F. (2005). Reported stressors and health care needs of active duty Navy personnel during three phases of deployment in support of the war in Iraq. *Military Medicine, 170,* 530–535.

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *Journal of the American Medical Association, 298,* 2141–2148. doi:10.1001/jama.298.18.2141

Mmari, K., Roche, K. M., Sudhinaraset, M., & Blum, R. (2009). When a parent goes off to war: Exploring the issues faced by adolescents and their families. *Youth & Society, 40,* 455–475. doi:10.1177/0044118X08327873

Monson, C. M., Taft, C. T., & Fredman, S. J. (2009). Military-related PTSD and intimate relationships: From description to theory-driven research and intervention development. *Clinical Psychology Review, 29,* 707–714. doi:10.1016/j.cpr.2009.09.002

National Institute of Mental Health. (2008). *Depression* (NIH publication No. 08–3561). Retrieved from http://www.nimh.nih.gov/health/publications/depression/nimhdepression.pdf.

Nelson Goff, B. S., Crow, J. R., Reisbig, A. M. J., & Hamilton, S. (2007). The impact of individual trauma symptoms of deployed soldiers on relationship satisfaction. *Journal of Family Psychology, 21,* 344–353. doi:10.1037/0893–3200.21.3.344

Peebles-Kleiger, M. J., & Kleiger, J. H. (1994). Re-integration stress for Desert Storm families: Wartime deployments and family trauma. *Journal of Traumatic Stress, 7,* 173–194. doi:10.1002/jts.2490070203

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40,* 879–891. doi:10.3758/BRM.40.3.879

Radloff, L. S., & Locke, B. Z. (2008). Center for Epidemiological Studies depression scale (CES-D). In A. J. Rush, Jr., M. B. First, & D. Blacker (Eds.), *Handbook of psychiatric measures* (2nd ed., pp. 506–508). Washington, DC: American Psychiatric Publishing.

Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review, 28,* 179–198. doi:10.1016/j.cpr.2007.04.007

Renshaw, K. D., Rodrigues, C. S., & Jones, D. H. (2008). Psychological symptoms and marital satisfaction in spouses of Operation Iraqi Freedom veterans: Relationships with spouses' perceptions of veterans' experiences and symptoms. *Journal of Family Psychology, 22,* 586–594. doi:10.1037/0893–3200.22.3.586

Sahlstein, E., Maguire, K. C., & Timmerman, L. (2009). Contradictions and praxis contextualized by wartime deployment: Wives' perspectives revealed through relational dialectics. *Communication Monographs, 76,* 421–442. doi:10.1080/03637750903300239

Sayers, S. L. (2011). Family reintegration difficulties and couples therapy for military veterans and their spouses. *Cognitive and Behavioral Practice, 18,* 108–119. doi:10.1016/j.cbpra.2010.03.002

Sayers, S. L., Farrow, V. A., Ross, J., & Oslin, D. W. (2009). Family problems among recently returned military veterans referred for a mental health evaluation. *Journal of Clinical Psychiatry, 70,* 163–170. doi:10.4088/JCP.07m03863

Solomon, D. H., & Knobloch, L. K. (2001). Relationship uncertainty, partner interference, and intimacy within dating relationships. *Journal of Social and Personal Relationships, 18,* 804–820. doi:10.1177/0265407501186004

Solomon, D. H., & Knobloch, L. K. (2004). A model of relational turbulence: The role of intimacy, relational uncertainty, and interference from partners in appraisals of irritations. *Journal of Social and Personal Relationships, 21,* 795–816. doi:10.1177/0265407504047838

Solomon, D. H., & Theiss, J. A. (2008). A longitudinal test of the relational turbulence model of romantic relationship development. *Personal Relationships, 15,* 339–357. doi:10.1111/j.1475–6811.2008.00202.x

Solomon, D. H., Weber, K. M., & Steuber, K. R. (2010). Turbulence in relational transitions. In S. W. Smith & S. R. Wilson (Eds.), *New directions in interpersonal communication research* (pp. 115–134). Thousand Oaks, CA: Sage.

Theiss, J. A., & Knobloch, L. K. (2009). An actor-partner interdependence model of irritations in romantic relationships. *Communication Research, 36,* 510–537. doi:10.1177/0093650209333033

Theiss, J. A., Knobloch, L. K., Checton, M. G., & Magsamen-Conrad, K. (2009). Relationship characteristics associated with the experience of hurt in romantic relationships: A test of the relational turbulence model. *Human Communication Research, 35,* 588–615. doi:10.1111/j.1468–2958.2009.01364.x

Theiss, J. A., & Solomon, D. H. (2006a). Coupling longitudinal data and multilevel modeling to examine the antecedents and consequences of jealousy experiences in romantic relationships: A test of the relational turbulence model. *Human Communication Research, 32,* 469–503. doi:10.1111/j.1468–2958.2006.00284.x

Theiss, J. A., & Solomon, D. H. (2006b). A relational turbulence model of communication about irritations in romantic relationships. *Communication Research, 33,* 391–418. doi:10.1177/0093650206291482

U.S. Army. (2010). *Army health promotion, risk reduction, and suicide prevention report.* Retrieved from http://usarmy.vo.llnwd.net/e1/HPRRSP/HP-RR-SPReport2010_v00.pdf

Uebelacker, L. A., Courtnage, E. S., & Whisman, M. A. (2003). Correlates of depression and marital dissatisfaction: Perceptions of marital communication style. *Journal of Social and Personal Relationships, 20,* 757–769. doi:10.1177/0265407503206003

Vormbrock, J. K. (1993). Attachment theory as applied to wartime and job-related marital separation. *Psychological Bulletin, 144,* 122–144. doi:10.1037/0033–2909.114.1.122

Weinstock, L. M., & Whisman, M. A. (2004). The self-verification model of depression and interpersonal rejection in heterosexual dating relationships. *Journal of Social and Clinical Psychology, 23,* 240–259. doi:10.1521/jscp.23.2.240.31020

Whisman, M. A. (2001). The association between depression and marital dissatisfaction. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association.

Wiens, T. W., & Boss, P. (2006). Maintaining family resiliency before, during, and after military separation. In C. A. Castro, A. B. Adler, & T. W. Britt (Eds.), *Military life: The psychology of serving in peace and combat* (Vol. 3, pp. 13–38). Westport, CT: Praeger.

Wood, A. M., Taylor, P. J., & Joseph, S. (2010). Does the CES-D measure a continuum from depression to happiness? Comparing substantive and artifactual models. *Psychiatry Research, 177,* 120–123. doi:10.1016/j.psychres.2010.02.003

Wood, S., Scarville, J., & Gravino, K. S. (1995). Waiting wives: Separation and reunion among Army wives. *Armed Forces & Society, 21,* 217–236. doi:10.1177/0095327X9502100204

Received October 25, 2010
Revision received April 5, 2011
Accepted April 14, 2011 ■