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Actor–Partner Associations of Mindfulness and Marital Quality After Military Deployment

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Abstract

Objective: To explore dyadic associations between mindfulness and marital quality and gender differences in these associations—that is, the relation of each dyad member's mindfulness with his or her own marital quality and with his or her partner's marital quality.

Background: Recent studies have demonstrated the benefits of mindfulness for marital quality. However, associations of mindfulness and marital quality within and between partners are still unclear. In addition, despite marital challenges associated with deployment to war, the benefits of mindfulness for marital quality in military couples is yet unknown.

Method: A sample of 228 military couples following deployment of the male partner to recent conflicts in Iraq or Afghanistan completed an online survey measuring mindfulness and marital quality.

Results: Actor–partner interdependence (APIM) analysis showed that, for both men and women, greater mindfulness was associated with one's own and one's partner's higher marital quality. There were no gender differences in this pattern.

Conclusion: Mindfulness engenders intra- and interpersonal benefits for the marital system in men and in women following deployment to war.

Implications: The results emphasize the importance of a dyadic approach when examining the role of mindfulness in marital or family relations, and suggest that interventions designed to facilitate change in marital relationships in the context of deployment may benefit from integrating mindfulness-based training.

Keywords

mindfulness; marital quality; military; actor–partner interdependence model (APIM)

Research spanning over 20 years has established the contribution of mindfulness to mental health and wellbeing (Brown & Ryan, 2003; Chiesa & Serretti, 2009). However, only recently have data provided evidence of the link between mindfulness and marital quality (Burpee & Langer, 2005; Wachs & Cordova, 2007). This new area of investigation has largely focused on associations of mindfulness with an individual's own marital satisfaction (Gambrel & Keeling, 2010). Still, the interpersonal benefits of mindfulness for marital quality—that is, the relationship of each dyad member's mindfulness with his or her own marital quality and with his or her partner's marital quality—remains understudied. The main goal of this study was to test intra- and inter-spousal associations between mindfulness and marital quality. In addition, we sought to expand prior research by addressing two main topics: (a) the benefits of mindfulness for marital quality following deployment to war, when couples may be coping with marital challenges related to reintegration (Merolla, 2010); and (b) gender differences in the dyadic associations between mindfulness and marital quality. We addressed these research objectives by examining spouses' mindfulness and marital quality using dyadic data analysis in a sample of couples following the male partner's deployment to the recent conflicts in the Middle East. This study may facilitate understanding of the contribution of individuals' mindfulness to the marital system in the context of reintegration following deployment. Such data could lay the groundwork for the development of mindfulness-based interventions with military couples.

Mindfulness and Marital Relationships

The construct of mindfulness refers to paying attention in a specific way: on purpose, in the present moment, and nonjudgmentally. This concept is rooted in the traditional Buddhist practice of meditation (Kabat-Zinn, 2003), but in the past few decades it has received a flood of attention in the scientific literature, largely due to its salutary effects on mental health and wellbeing (Keng, Smoski, & Robins, 2011). Although individuals have a certain predisposition for mindfulness (Ortner, Kilner, & Zelazo, 2007), clinical trials have demonstrated that the capacity to be mindful can improve through training and practice (Baer, Carmody, & Hunsinger, 2012; Carmody, Baer, Lykins, & Olendzki, 2009; Völlestad, Sivertsen, & Nielsen, 2011).

Recent studies have revealed some promising benefits of mindfulness for marital quality (Gambrel & Keeling, 2010). Marital quality refers to feelings and evaluations of spouses about their marital relationship (Glenn, 1990). Prior studies have offered evidence about the direct link between mindfulness and greater marital satisfaction (Burpee & Langer, 2005; Jones, Welton, Oliver, & Thorburn, 2011; Wachs & Cordova, 2007). A recent meta-analysis testing 12 effect sizes from 10 studies indicated that the extent to which marital partners practiced mindfulness across these studies explained 7% of the observed variation in marital quality (McGill, Adler-Baeder, & Rodriguez, 2016). The benefits of mindfulness for intimate relationships have also been demonstrated in a randomized controlled trial targeting distressed couples. In that study, eight weeks of mindfulness training improved marital happiness, closeness, and acceptance of one another in those assigned to the intervention compared with a wait-list control group (Carson, Carson, Gil, & Baucom, 2004).

Interdependency in Mindfulness and Relationship Quality

Whereas extant research has focused almost exclusively on the intrapersonal associations of mindfulness and individual perceptions of marital quality (Burpee & Langer, 2005; Wachs & Cordova, 2007), attempts to investigate interpersonal associations of mindfulness with marital quality are rare. As a result, much remains unknown about how individuals' own mindfulness influences their partner's relationship quality (Burpee & Langer, 2005). The idea of interdependence between intimate partners is not new to science. Interdependence theory proposes that couples have ongoing and mutual influences on each other, such that one partner's characteristics (e.g., mindfulness) can influence the outcomes (e.g., marital quality) of both partners (Kelley & Thibaut, 1978). The theory highlights the role of a person's cognitive assessments of situations in everyday life. These cognitive evaluations evoke motives, which in turn drive behaviors when engaging in intimate interactions. In addition, personal characteristics, such as the tendency to be mindful, can shape the way partners evaluate a situation, in turn affecting their behaviors. In this ongoing process of assessments and reactions in interactions with a partner, couples evaluate their relationship quality based on the degree to which important needs, values, and goals are fulfilled in the interpersonal processes (Arriaga, 2013). Central theories of intimate relationships (e.g., family system theory; Cox & Paley, 1997) and relationship research (see Fincham & Beach, 2010, for a review) recognize the importance of interdependency between intimate partners. In addition, primary theories and broad research in the field of marital relationships (e.g., Gottman, 1994; Karney & Bradbury, 1995) have shown how personal characteristics and perceptions affect couple interaction, which predicts marital quality of both partners (Durtschi, Fincham, Cui, Lorenz, & Conger, 2011; Gottman and Notarius, 2000; Karney & Bradbury, 1995).

Interdependence theorists (Arriaga, 2013; Kelley & Thibaut, 1978) provide a framework to understand how partners' characteristics and perceptions influence decisions about how to interact with an intimate partner and how mutual interpersonal processes in interactions ultimately affect partners' marital quality. Brown, Ryan, and Creswell (2007) further explained how mindfulness contributes to the assessment of situations, which in turn facilitates decisions about how to respond to a partner. Specifically, the receptive attentiveness of mindfulness can enhance intersubjective attention to verbal and non-verbal communication by the partner. At the same time, mindfulness can promote awareness of one's own cognitive, emotional, and verbal responses to the interaction. Attention to one's own subjective experience enables intentional choice about one's reactions, which is necessary for effective self-regulation. Self-regulation permits flexible, adaptive responses to events, and helps minimize automatic or impulsive reactions. Thus, mindfulness may enable an individual to respond constructively rather than destructively when interacting with an intimate partner (Brown et al., 2007). Observational data demonstrated how mindfulness is linked to couple interaction, such that mindfulness is negatively associated with verbal aggression during conflict (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). In addition, self-reports of improved capacity for aggression control have been found to mediate the associations between mindfulness and marital quality (Wachs & Cordova, 2007).

A few studies have partially addressed the issue of dyadic interdependence in the associations of mindfulness and marital quality. For example, data have indicated direct links between mindfulness and marital happiness, love and commitment, and communication skills within the individual while controlling for the other partner's contribution to these outcomes (Barnes et al., 2007; Carson et al., 2004; Parent et al., 2014). In addition, mindfulness in women is positively associated with marital quality (Parent et al., 2014), but negatively associated with anger and hostility of their male partners following a conflict discussion, controlling for their own effects (Barnes et al., 2007). However, Parent et al. (2014) measured mindfulness as acting with awareness, omitting other important elements of the construct (e.g., observing inner experiences in the present moment non-judgmentally). Further, this study was designed to examine specific marital outcomes related to co-parenting in a low-income African American sample, so the results may not generalize to other outcomes or populations. In the two other studies mentioned above, the authors either did not measure perceptions of marital quality (Barnes et al., 2007) or inferred mindfulness from participation in a mindfulness intervention without accounting for variations in level of mindfulness (Carson et al., 2004). Given the limitations of these studies, as well as the need to account for interdependency within spouses, we were interested in investigating dyadic associations of mindfulness with marital quality—that is, how each partner's mindfulness is associated with his or her own and his or her partner's marital quality.

Research in the area of couple interdependence is complicated by the fact that traditional statistical techniques are designed for use with individuals rather than couples (Fincham & Beach, 2010). In the present study, we employed the actor-partner interdependence model (APIM), which handles interdependence within couples (Cook & Kenny, 2005). The APIM is a theoretically-informed statistical method that simultaneously estimates both actor effects (i.e., the effects of each dyad member on his or her own outcomes) and partner effects (i.e., the effects of each dyad member on his or her partner), while accounting for the shared couple-level context (Cook & Kenny, 2005). This method has been recognized as a preferred technique in the field, an improvement over past methods in which couples' interdependence was ignored or handled in non-optimal ways (e.g., mean couple scores, which are subject to bias when one member has extreme scores; Fincham & Beach, 2010).

Gender Differences

The research thus far has failed to provide substantial evidence regarding the question of whether mindfulness influences marital quality differentially for husbands and wives. Specifically, there are discrepancies regarding the actor associations between mindfulness and marital quality: Parent et al. (2014) found positive associations between mindfulness and marital adjustment only in women. However, other studies found no gender differences in the actor effects of participation in a mindfulness intervention on marital happiness (Carson et al., 2004), or in the association of mindfulness and marital adjustment (Parent et al., 2014). With respect to partner effects, findings indicated that women's mindfulness was inversely associated with men's anger and hostility, but not vice versa (Barnes et al., 2007; Parent et al., 2014). The mixed findings and limitations of these studies, as outlined previously, limit understanding about gender differences in the dyadic associations of mindfulness and marital quality.

On the one hand, prior research suggests that the actor and partner associations between mindfulness and marital quality will be stronger for women than for men (Barnes et al., 2007; Parent et al., 2014). Scholars posit that women tend to take a central role in maintaining close relationships (Cross & Madson, 1997). For example, women tend to be more invested in improving relationships (Shafer, Jensen, & Larson, 2014), and to play a unique role in deescalating tensions by soothing their partners during conflicts (Gottman, Coan, Carrere, & Swanson, 1998). Because mindfulness can facilitate interpersonal processes, which can be beneficial for the marital quality of both partners (Gottman & Notarius, 2000), it is logical to predict that the benefits of mindfulness in women will have benefits for both partners' marital outcomes. On the other hand, independence is considered a fundamental component in men's identity; hence, men tend to be less intimate and emotionally disclosing than women (Cross & Madson, 1997). Thus, the benefits of having a male partner who is mindfully aware of emotions may have more salient effects on the intimacy and marital quality of both partners than having a female partner who is mindfully aware of emotions.

In light of discrepant data and theory, we tested potential gender differences in the actor and partner associations between mindfulness and marital quality. We assessed these dyadic associations simultaneously for men and women in a dyadic model.

Mindfulness and Reintegration Following War Deployment

Mindfulness has been found to be beneficial for marital quality in a civilian population (Jones et al., 2011; Wachs & Cordova, 2007), but not much is known about the benefits of mindfulness for marital quality among deployed military couples. In past research, this population has demonstrated distinctive relational characteristics (Merolla, 2010), some of which are related to transitional challenges after deployment (Gewirtz, Erbes, Polusny, Forgatch, & DeGarmo, 2011). Since 2001, over a million American families have experienced a family member's deployment to war in the Middle East (Department of Defense, 2013). These deployments may last more than a year. After such a long separation, some reintegrated couples may need to renegotiate fundamental issues related to house rules and responsibilities (Pincus, House, Christenson, & Adler, 2001), which may further trigger marital conflicts (Sayers et al., 2007). In addition, exposure to the stressors of war during deployment may result in emotional symptoms, such as posttraumatic stress disorder (PTSD) and depression in the deployed partner (Thomas et al., 2010). Gottman, Gottman, and Atkins (2011) posited that engagement in avoidance strategies to manage combat stress may leave service members emotionally flooded with emotions when managing family conflicts, further interfering with the ability to communicate constructively with partners. In this context of transitional challenges, reunited couples are at increased risk for marital difficulties, including relationship dissatisfaction and marital dissolution (Galovski & Lyons, 2004; Monson, Taft, & Fredman, 2009).

Although many reintegrated couples show resilience in the face of transitional difficulties (Karney & Crown, 2007), mindfulness may be beneficial for marital adjustment following deployment. Mindfulness may encourage self-regulation, leading to more constructive interaction (Brown et al., 2007). Indeed, Gottman et al. (2011) proposed that self-regulation

may allow soldiers to manage emotions related to combat stress and further enhance marital functioning. Likewise, other scholars have suggested that mindfulness-based interventions could facilitate successful marital adjustment following deployment by improving self-regulatory and interactional processes (Sandoz, Moyer, & Armelie, 2015). To date, however, empirical evidence to support the relevance of mindfulness for marital quality following deployment is lacking. Therefore, we tested our hypotheses in a sample of reintegrating National Guard and Reserve (NG/R) soldiers and their wives after the return of the male partner from a deployment to one of the conflicts in the Middle East. This military population was living in civilian communities, without the support, routine, or structure of the military base. For example, they have less accessibility to military medical care and to peers who may provide support for deployment-related stressors (Karney & Crown, 2007). In recent years, NG/R soldiers have been identified as particularly susceptible to psychological symptoms during reintegration compared with active duty soldiers (Thomas et al., 2010). The results of the present study may provide preliminary data necessary for the translation of scientific literature into mindfulness-based interventions for service members and their spouses following deployment.

The Present Study

The present study tested interdependent associations of mindfulness with marital quality while accounting for gender differences among reintegrating military couples. We hypothesized that: (1) higher levels of mindfulness are associated with higher actor and partner marital quality, and (2) the actor and partner associations between mindfulness and marital quality differ across genders.

Method

Participants

The sample was derived from the baseline sample of a prevention study targeting effective parenting (After Deployment Adaptive Parenting Tools) among National Guard/Reserve (NG/R) parents. Parents for whom (a) at least one partner in the coparenting couple had been deployed to a recent conflict in Iraq or in Afghanistan and (b) at least one residential child of the couple between 4 and 12 years of age were eligible to participate in the program. Guided by the requirements of APIM with distinguishable dyads (e.g., gender as a distinctive variable between dyad members; Kenny et al., 2006), we adjusted the initial sample of parents ($N = 336$) to include only married or cohabiting heterosexual couples with both partners participating in the study. Specifically, we excluded single parents (66), divorced couples (3), couples who did not live together (2), one lesbian couple, and one couple with missing data on marital status. Further, most of our initial sample included deployed men partnered with non-deployed women (i.e., 96.1% of men and only 11.8% of women were deployed). Given that there were an insufficient number of cases with different combinations of deployment status and gender to effectively tease apart deployment and gender effects, we excluded couples with deployed female partner (35), and focused only on deployed men partnered with non-deployed women ($N = 228$). There were no statistical differences in demographic characteristics between couples who were included in the present study and

those who were in the program but excluded from the present study according to the aforementioned criteria (results not shown).

Married couples made up the vast majority of the sample (97.8%), compared to a much smaller number of cohabitating couples (2.2%). Relationships had lasted between land 28 years ($M = 10.0$; $SD = 5.3$), couples had one to five children ($M = 2.4$, $SD = 0.9$). Women's ages ranged from 23 to 51 years ($M = 35.5$, $SD = 5.9$), and men's ages ranged from 23 to 58 years ($M = 37.1$, $SD = 6.6$). Annual household incomes ranged from \$39,999 or less (11.5%) to \$120,000 or more (15%). The modal income categories were from \$40,000 to \$79,999 (32.2%) and from \$80,000 to \$119,999 (41.4%). About half of participants (49.1% of husbands and 51.3% of wives) reported completing at least a bachelor's degree.

Most of the deployed men were affiliated with the Army National Guard (60.1%); the rest were affiliated with the Army Reserve (11.8%), Air National Guard (10.1%), Navy Reserve (3.9%), Air Force Reserve (3.9%), or other military units (10.1%). Enlisted personnel made up about 75% of the deployed men and the remaining 25% were officers. Men were deployed between 1 and 10 times during the recent conflicts ($M = 2.0$, $SD = 1.2$). The total number of months deployed ranged from less than six months (6.1%) or longer than three years (9.6%), with a majority lasting 7–12 months (26.8%), 13–24 months (32.9%), or 25–36 months (24.6%).

Procedures

Recruitment of participants included multiple methods of convenience sampling, such as events for NG/R personnel, letters from the Minneapolis Veterans Affairs Medical Center, flyers posted in central locations (e.g., grocery stores), traditional media (e.g., newspaper), social media (e.g., Facebook), and word of mouth. Couples who were interested in participating in the study filled out an online screening survey to assess eligibility. Those who met eligibility criteria and submitted their consent form were referred to an online self-report survey compliant with the federal Health Insurance Portability and Accountability Act, and each individual received \$25 upon completion. In addition, participants completed self-report measures during an in-home baseline assessment, for which couples received \$50. The surveys were completed between June 2011 and April 2014. Couples were recruited and assessed for the study by a team of a trained assessment technicians, who also received training in human subjects and ethics. Approval for the study was obtained from the University of Minnesota's Institutional Review Board.

Measures

Mindfulness.—The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a 39-item self-report scale of five facets of trait mindfulness: observing emotions, describing emotions, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience (e.g., “I perceive my feelings and emotions without having to react to them,” “I find it difficult to stay focused on what's happening in the present”). Items are rated on a Likert scale from *never or very rarely true* (1) to *very often or always true* (5). To keep our analytic procedure as parsimonious as possible, we used the total score of the FFMQ scale, as suggested by Carmody and Baer

(2008). Higher sum scores indicate greater mindfulness. The scale has shown good convergent, discriminant, and construct validity (Baer et al., 2006). In the present sample, the internal consistency for the entire scale was .89 for males and .90 for females.

Marital quality.—To assess marital quality, each spouse completed the Dyadic Adjustment Scale (DAS-7; Hunsley, Best, Lefebvre, & Vito, 2001; Hunsley, Pinsent, Lefebvre, James-Tanner, & Vito, 1995), a short version of the original 28-item DAS (Spanier, 1976). This seven item scale includes (a) three items assessing degree of agreement (e.g., “Please indicate the extent of agreement or disagreement between you and your partner about the amount of time spent together”) on a scale from *always disagree* (0) to *always disagree* (5); (b) three items assessing degree of dyadic cohesion (e.g., “Please indicate how often you and your mate calmly discuss something together”) on a scale from *never* (0) to *more often* (5); and (c) one item assessing global dyadic satisfaction on a scale from *extremely unhappy* (0) to *perfect* (6). The scale score was an equally weighted mean of the seven responses, with higher scores indicating better marital quality. The DAS is one of the most widely used measures to assess marital quality (Fincham & Linfield, 1997), and it has well-established criterion validity and discriminant validity (Hunsley et al., 2001). Cronbach’s alpha for the present sample was .86 for both genders.

Analytic Strategy

We applied an actor–partner interdependence model (APIM) following the guidelines of Kenny, Kashy, and Cook (2006) for distinguishable dyads using multilevel modeling (MLM). The MLM procedure assesses actor and partner effects on the outcome variable within a hierarchical structure, such that the individual level of analysis (i.e., actor and partner) is nested within a higher level of analysis (i.e., the couple). MLM was applied using the MIXED procedure in SPSS version 22 (Arbuckle, 2013).

To allow estimation of all model parameters within a single equation in a multilevel modelling procedure, we constructed the data such that each dyad member was entered as a case on a separate line in the data file. Members of the same dyad were identified with the same dyad ID and their gender. This data structure reflects the nested structure of the data—individuals nested within a dyad. The independent and dependent variables were double-entered, such that for each individual there are records of actor data and records of partner data for each variable. (Cook & Kenny, 2005). The APIM model controlled for gender differences in actor and partner effects by simultaneous estimation of gender interactions (Actor Effect x Gender; Partner Effect x Gender). In addition, continuous variables were standardized and gender was recoded (men = 1; women = –1). All participants completed a baseline assessment; however, some variables had missing values. In total, 3.1% of the values in the study were missing and only two participants had more than 1% missing values. There were no more than 3.4% missing values for any one variable.

Results

Descriptive statistics and zero-order correlations for all study variables are presented in Table 1. Mindfulness in men was positively associated with mindfulness in women. For men

and women, mindfulness was positively correlated with marital quality for both self and partner. Finally, marital quality of men and women was positively associated.

Actor–Partner Associations between Mindfulness and Marital Quality

To test our hypotheses that higher levels of mindfulness would be associated with higher actor and partner marital quality and that the associations between mindfulness and marital quality would differ across genders, we used an actor–partner interdependence model (APIM), following the guidelines of Kenny et al. (2006). The results of the multilevel analysis (see Table 2) show that, in accordance with our first hypothesis, actor mindfulness was positively associated with marital quality—that is, husbands with higher levels of mindfulness reported experiencing higher levels of marital quality, and wives with higher levels of mindfulness reported experiencing higher levels of marital quality. Also, compatible with our first hypothesis, the multilevel analysis (see Table 2) revealed statistically significant positive partner associations between mindfulness and marital quality. For both men and women, higher levels of mindfulness were associated with higher levels of marital quality in their partners.

To test our second hypothesis, whether gender moderates actor and partner associations of mindfulness and marital quality, we tested the associations between the interactions of actor's and partner's mindfulness with gender and marital quality. The multilevel analysis presented in Table 2 indicates that interactions between actor and partner mindfulness and gender were not statistically correlated with marital quality. These results show that contrary to our second hypothesis, gender does not moderate the relationship between actor or partner mindfulness and marital quality. The overall model presented in Table 2 explained 17.6% of the variance of marital quality between couples.

Discussion

We assessed dyadic associations between mindfulness and marital quality in military couples following deployment to war. We also assessed whether these associations differ across genders. The findings indicated that greater mindfulness is associated with higher marital quality in both male service members and their partners. In this study we extended prior work on mindfulness and marital quality, which has focused primarily on the intrapersonal associations of mindfulness and marital functioning (Burpee & Langer, 2005; Jones et al., 2011; Wachs & Cordova, 2007), by employing a dyadic approach. We relied on the premises of interdependence theory (Arriaga, 2013; Kelley & Thibaut, 1978), which posits that each partner's characteristics are important to the assessments and behavioral responses to marital situations, which in turn informs partners' evaluations of marital quality. Our data support the notion of interdependency between partners by showing how a characteristic (i.e., mindfulness) of each dyad member is related to marital outcomes of both dyad members (Arriaga, 2013; Cox & Palay, 1998; Kelley & Thibaut, 1978).

In addition, we employed Browne et al.'s (2007) cognitive-behavioral framework to explain the inter- and intra-spousal associations between mindfulness and marital quality. Browne and colleagues described how the receptive attentiveness of mindfulness facilitates greater marital quality by increasing awareness of one's own cognitions, emotions, and behaviors,

and of one's partner's behaviors when assessing marital situations. These assessments can further contribute to more constructive behaviors (Browne et al., 2007), leading to greater marital quality of both dyad members (Arriaga, 2013; Kelley & Thibaut, 1978). In line with theory and previous studies, our findings indicate that mindfulness engenders intra- and interpersonal benefits in the form of improved marital quality (Barnes et al., 2007; Parent et al., 2014). The present study also extend prior research by utilizing a more comprehensive definition for the concept of mindfulness, and by directly testing the construct of marital quality. Results suggest that the investigation of mindfulness should be expanded beyond the individual level to include the broader interpersonal benefits of mindfulness within the family or marital system. Given that we tested only the direct associations between mindfulness and marital quality, without examining the underlying mechanism of these associations, further research is needed to determine *how* mindfulness operates to affect one's own and one's partner's marital functioning.

The present study shows the benefits of mindfulness to the dyadic system in the context of reintegration following deployment to war. Whereas previous studies have focused on civilian couples (e.g., Barnes et al., 2007; Carlason et al., 2004; McGill et al., 2016), our data suggest that mindfulness can be a beneficial resource for military couples following deployment. These findings provide preliminary data to support recent recommendations to implement mindfulnessbased interventions with reintegrating couples (Sandoz et al., 2015), and provide a foundation for further research on the effectiveness of mindfulness interventions for improving marital quality in this population. Theories grounded in a family stress and coping perspective suggest an alternative explanation to underlying process through which mindfulness-based interventions may help couples who are struggling with transitional stressors following deployment to improve marital relationships (Galovski & Lyons, 2004; Pincus et al., 2005). Specifically, in the contexts of marital challenges, some psychological characteristics (e.g., mindfulness) can facilitate effective couple communication, thus enhancing marital quality (Karney & Bradbury, 1995; Karney & Crown, 2007). Kabat-Zinn (1994) theorized that the key component of mindfulness, non-judgmental attention to present experience, forms the foundation for effective stress management. Likewise, empirical evidence has underscored the advantages of mindfulness for stress regulation (Britton, Shahar, Szepsenwol, & Jacobs, 2012; Chiesa & Serretti, 2009). Perhaps the ability to self-soothe under stressful circumstances can promote healthy marital functioning among military families (Ledermann, Bodenmann, Rudaz, & Bradbury, 2010; MacPhee, Lunkenheimer, & Riggs, 2015). Although the present study indicates benefits of mindfulness to the dyadic system in the context of reintegration from deployment, it cannot speak to the underlying process. More data are needed to test whether mindfulness can buffer the effects of life stressors on marital quality in general and in the context of reintegration in particular.

Our results indicated no gender differences in actor and partner associations between mindfulness and marital quality. Past research (e.g., Barnes et al., 2007; Parent et al., 2014) and theories (e.g., Cross & Madson, 1997) were mixed with respect to gender differences in the dyadic associations of mindfulness and marital quality. Interpretations of the present results should be considered in light of several methodological dissimilarities with prior research. First, whereas in past research Parent et al. (2014) defined mindfulness as acting

with awareness, and Barnes et al. (2007) investigated observed communication as a marital outcome, our study addressed the issue of dyadic associations between mindfulness and self-reported marital quality using a comprehensive definition of mindfulness. Second, whereas prior studies did not test for gender differences in actor and partner effects, our study did so by modeling the interaction effects of mindfulness with gender in a multi-level model. Lastly, whereas previous studies sampled the civilian population, specifically college students (Barnes et al., 2007) and low-income cohabitating African-American couples (Parent et al., 2014), we sampled military couples in which the male partners were deployed to a war. These veteran husbands were more likely than civilians to be exposed to traumatic stressors or other transitional stressors associated with military deployments (Galovski & Lyons, 2004; Thomas et al., 2010). Mindfulness is a resource that may enhance the capacity to manage stress (Britton et al., 2012; Brown & Ryan, 2003), ease post-traumatic symptoms (Kearney, McDermott, Malte, Martinez, & Simpson, 2012), and improve positive communication with one's partner (Barnes et al., 2007). As such, in contrast to studies among civilians indicating partner associations between mindfulness and marital quality only in women (Barnes et al., 2007; Parent et al., 2014), mindfulness of the male partner may have particular benefits among those exposed to stressful and traumatic experiences, such as can occur with military deployment, leading to improved marital functioning in both partners.

Limitations and Future Research Directions

Results of the present study should be considered in light of some methodological limitations. The cross-sectional design prevents us from drawing any conclusions about causality. Future longitudinal research should address the question of causality between mindfulness and marital quality. In addition, we acknowledge the possibility of bias in self-report measures and recommend incorporating multi-method data such as observed couple interactions in future studies.

Lastly, our sample included military couples following combat deployment and is therefore restricted in terms of generalizability. First, the sample is largely from a well-educated, middle class, Caucasian population. Additional investigation is needed in more diverse military samples. Second, NG/R troops and their wives experience unique circumstances relative to active duty military personnel following deployment. NG/R soldiers, who integrate back into civilian environments without the supporting resources of a military base (Karney & Crown, 2007), tend to exhibit greater distress following homecoming (Thomas et al., 2010). Reintegration entails specific challenges, such as coping with trauma exposure in combat (e.g., post-traumatic symptoms, injuries, depression) and changes in the relationships after a long-term separation, that may be experienced differently by NG/R soldiers than by active duty soldiers. Thus, further research is needed to confirm the contribution of mindfulness in other military populations, including military couples who have not experienced deployment, clinical military populations, and couples at different points in the deployment cycle. Such data could help to develop a model specifying the process through which mindfulness operates to effect the marital system. For example, as noted in previous sections, mindfulness may enhance marital quality by protecting against stressors related to deployment (Chiesa & Serretti, 2009; Kearney et al. 2012). Data from

different military populations would allow modeling the moderating effect of mindfulness at different levels of stress. More directly, stress may vary across the deployment cycle when family members experience different stressors, or between deployed and nondeployed military families. Stress could also vary between NG/R and active duty personnel who benefit from the support of a military installation, or according to combat experience during deployment.

Implications for Practice and Policy

This study offers some practical considerations for educators, clinicians, policy makers, especially for those who are working with military couples after deployment. Given that over a million American families have experienced deployment to war since 2001 (Department of Defense, 2013), and given that military couples are at greater risk for marital difficulties (Erbes, Meis, Polusny, & Compton, 2011), it is important that policy makers, educators, and practitioners allocate resources for the development, implementation, and dissemination of intervention and prevention programs designed to promote marital quality for this population.

Our data suggest that intervention and prevention programs for military couples would benefit by adding mindfulness components. Some scholars have recently recommended mindfulness-based therapies for military couples (Sandoz et al., 2015), and clinical studies have indicated that mindfulness training can enhance mindfulness over time. For example, eight weeks of the Mindfulness-Based Stress Reduction intervention (MBSR) has been shown to increase mindfulness over time (Baer et al., 2012; Carmody & Baer, 2008; Carmody et al., 2009; Hölzel et al., 2011). Improvements in mindfulness as a function of intervention have been replicated in randomized controlled trials. Specifically, at least two studies have shown that participation in the MBSR course has been associated with statistical increases in mindfulness among participants in the intervention, relative to those in the control condition. These improvements were evident in a clinical sample of patients with anxiety disorders (Vøllestad et al., 2011) and in healthy populations (Hölzel et al., 2011).

Mindfulness training has been associated with enhanced marital quality in civilian couples (Carson et al., 2004). In addition, integrative behavioral couple therapy (IBCT; Christensen, Jacobson, & Babcock, 1995), which combines emotional acceptance (a component of mindfulness) with traditional behavioral couple therapy, has been shown to increase marital satisfaction in a randomized control trial with civilian couples (Christensen, Atkins, Baucom, & Yi, 2010). The effects of IBCT were sustained even at a five-year follow-up and were greater compared to the effects of traditional cognitive couple therapy (Christensen et al., 2010).

Lastly, previous studies have shown the potential of mindfulness training for addressing some of the marital stressors following deployment and for marital functioning. Mindfulness training is effective for treating PTSD and depression (Kearney et al., 2012), and reducing stress (Britton et al., 2012; Brown & Ryan, 2003), risks for which are increased following combat deployment (Galovski & Lyons, 2004; Thomas et al., 2010).

Based on the results of our study, as well as the literature cited above, we recommend that clinicians and educators consider offering mindfulness as a stand-alone training or incorporating mindfulness training into existing marital therapy or trainings. Interventions could be designed for couples, but given the association of individual mindfulness with the partner's marital quality, mindfulness training might also be beneficial for both partners even in individual therapies. An advantage of mindfulness training is its short-term duration—MBSR training is as short as eight weeks (Santorelli & Kabat-Zinn, 2002)—which may encourage adherence to treatment. Thus far, major mindfulness-based interventions such as MBSR, dialectical behavioral therapy (DBT), mindfulness-based cognitive therapy (MBCT), and acceptance and commitment therapy (ACT) have been delivered in individual or group but not family settings. There is a substantial lack of literature demonstrating the effectiveness of mindfulness interventions for marital therapy (Gambrel & Keeling, 2010). Further investigation is needed to establish the effectiveness of mindfulness training on couples' relationships, either as a stand-alone intervention or as a hybrid intervention with other techniques, against other interventions with established effectiveness.

In conclusion, our findings reveal a net of dyadic interdependent associations between mindfulness and marital quality that shed light on the global implications of mindfulness for the marital system among military NG/R couples after deployment. Future research should assess its mechanisms of action and its promise as a target for clinical preventive interventions in military and civilian couples.

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Table 1

Means, Standard Deviations, and Inter-Scale Correlations

			Men		Women	
	<i>M</i>	<i>SD</i>	1	2	3	4
Men						
1. Mindfulness	130.62	16.99				
2. Marital quality	3.55	0.57	.340 ***			
Women						
3. Mindfulness	133.77	17.22	.147 *	.155 *		
4. Marital quality	3.55	0.60	.225 **	.571 ***	.250 **	

*Note.**
 $p < .05$.**
 $p < .01$.***
 $p < .001$.

Table 2

Actor–Partner Interdependence Model (APIM): Test of the Actor and Partner Associations of Mindfulness and Marital Quality

	Marital Quality			
	β	<i>SE</i>	<i>t</i>	<i>P</i>
Actor mindfulness	.278	.045	6.156	< .001
Partner mindfulness	.164	.045	3.633	< .002
Gender	.012	.031	0.385	.533
Actor mindfulness $\times$ Gender	.050	.048	1.028	.424
Partner mindfulness $\times$ Gender	−.058	.048	−1.190	.524