

Trauma Symptoms, Communication, and Relationship Satisfaction in Military Couples

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Trauma symptoms are negatively correlated with couple relationship satisfaction, which is of particular importance in the relationships of military personnel who are often exposed to trauma whilst on overseas deployment. This study tested a model in which communication mediated an association between trauma symptoms and low relationship satisfaction. Thirty-one Australian military couples were observationally assessed during a communication task, and assessed on their relationship satisfaction and individual functioning. As expected, trauma symptoms in the male military spouse were associated with low satisfaction in both spouses. Females' low positive communication fully mediated the relationship between males' trauma symptoms and low female satisfaction, but not male relationship satisfaction. Unexpectedly, males' negative communication behaviors were associated with high male relationship satisfaction, and partially mediated the association between trauma symptoms and male satisfaction. Discussion focused on how some communication usually thought of as negative might be associated with relationship satisfaction in military couples.

Keywords: Relationship Satisfaction; Couples; Posttraumatic Stress; Communication; Military

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Relationship education (RE) programs aim to enhance couple relationships by facilitating the development of skills that couples can use to maintain satisfaction in the long-term. Although the content of RE varies between programs (Bodenmann & Shantinath, 2004; Halford et al., 2006; Markman, Stanley, & Blumberg, 2010), almost all RE programs place significant emphasis on communication skills. Couple communication is thought to be associated with relationship satisfaction (Woodin, 2011). Communication skills might be of particular importance to couples struggling with the distinctive challenges of the military lifestyle.

Between 2001 and 2013, large numbers of troops from the US, UK, and Australian armed forces deployed to conflicts in the Middle East (de Burgh, White, Fear, & Iversen, 2011). During this period, more military personnel experienced multiple deployments (Kline et al., 2010) and were deployed more frequently (Rona et al., 2007) than in prior conflicts. Everyday deployment stressors, paired with exposure to combat and traumatic

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events, put personnel at risk of mental health conditions such as posttraumatic stress disorder (PTSD). Estimates of PTSD prevalence in US Military personnel range widely from approximately 5–30%, dependent upon factors such as deployment history, combat exposure, injury, diagnostic criteria, and age cohort (Institute of Medicine, 2013), with the majority of US studies conducted with recently deployed personnel. Estimates in Australian Defence Force (ADF) personnel sit around 8.3% (Defence Health, 2015). In addition to the personnel officially diagnosed with PTSD, an even larger proportion of military personnel suffer from trauma symptoms on a lesser scale. Although these personnel do not meet the threshold for clinical diagnosis of PTSD, perhaps due to lower symptom severity or only experiencing symptoms from selected clusters, these trauma symptoms are associated with substantial adjustment difficulties, particularly in interpersonal relationships (Monson & Snyder, 2012). Specifically, trauma symptoms are correlated with low couple relationship satisfaction (Allen, Rhoades, Stanley, & Markman, 2010; Erbes, 2011; Nelson Goff, Crow, Reisbig, & Hamilton, 2007). This paper explores whether observed couple communication plays a mediating role in the relationship between trauma symptoms and couple satisfaction in military couples seeking RE.

Trauma and Military Couple Relationships

Several studies have shown that military personnel suffering from trauma symptoms have less satisfied couple relationships (Erbes, 2011), and report more relationship problems (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Sayers, Farrow, Ross, & Oslin, 2009), than personnel with few or no trauma symptoms. Difficulties with family relationships occur among about three quarters of military service personnel who seek treatment for posttraumatic stress (Sayers et al., 2009). Research has shown that military personnel do not have to be suffering posttraumatic stress at clinical levels for this to be associated with low couple satisfaction (Nelson Goff et al., 2007). The directionality of this association is unknown due to a dearth of longitudinal studies in the area. Although it is intuitive that posttraumatic stress might have a negative impact on couple relationships, it is also possible that military personnel in distressed relationships might be at increased risk of developing posttraumatic stress.

Good communication is generally viewed as a protective factor in couple relationships. Woodin (2011) conducted a meta-analysis of 64 studies looking at observed couple conflict and found associations between positive communication behaviors, such as intimate self-disclosure and problem-solving, and high relationship satisfaction; and associations of negative communication behaviors, such as hostility, with low satisfaction. However, good communication in military couples might be eroded by trauma symptoms. Trauma symptoms are associated with self-reports of more negative couple communication, specifically greater conflict and less warmth (Caska et al., 2014). Miller et al. (2013) were the first to look at the impact of PTSD symptoms on observed couple communication. As well as predicting more negative and less positive behaviors in the military partner (actor effects), trauma symptoms also predicted lower levels of positive behavior in the nonmilitary spouse (a partner effect). Negative couple communication has been shown to partially mediate the negative association of trauma symptoms with low couple satisfaction (Allen et al., 2010; Andres, 2014; Campbell & Renshaw, 2013). Symptoms such as anger and increased emotional arousal might lead the sufferer to use more negative behaviors such as criticism and disagreement in communication with their partner, thus contributing to a decline in both partners' relationship satisfaction.

Self-disclosure is a positive communication behavior that might be of particular importance in military couples. Several studies find that military personnel who report higher

levels of combat-related disclosure to their spouse had lower relationship distress than those who did not discuss the military member's deployment experiences (Balderrama-Durbin et al., 2013; Campbell & Renshaw, 2013). Furthermore, military personnel who reported disclosing their experiences to their spouse, or some significant other, subsequently reported declines in posttraumatic symptoms (Hoyt & Renshaw, 2014). It has been suggested that supportive couple discussion of combat experiences serves as exposure to reduce trauma-related symptoms (Monson et al., 2012). Moreover, such discussion might assist the nonmilitary spouse to understand and be more supportive of the military spouse struggling with trauma symptoms. Trauma symptoms are associated with particularly low relationship satisfaction when the nonmilitary spouse attributed trauma symptoms to internal attributes (i.e., their partner's personality), rather than external factors (i.e., combat exposure; Renshaw, Allen, Carter, Markman, & Stanley, 2014; Renshaw, Rodrigues, & Jones, 2008). Building nonmilitary spouses' understanding of their partner's trauma symptoms might reduce partner-blaming attributions and consequently any negative impact on relationship satisfaction.

In sum, existing studies suggest that couple communication might mediate the negative link between trauma symptoms and relationship satisfaction. However, existing studies are all based on self-reported couple communication, and observational research is needed. If observed communication is reliably mediating the association of trauma symptoms with low relationship satisfaction, this could provide guidance to clinicians working with military personnel affected by trauma, as well as inform content in RE programs tailored for use with this population.

The Current Study

The current study tested whether observed couple communication mediated the relationship between trauma symptoms and relationship satisfaction in a nonclinical sample of military personnel and their partners. In the current study trauma symptoms refer to symptoms of PTSD; however, due to the use of a nonclinical sample, these symptoms are expected to be of lower severity and not necessarily experienced at levels constituting a clinical diagnosis. Data were collected from both partners in a couple, allowing assessment of the association of the military member's trauma symptoms on their own and their partner's relationship satisfaction. It was hypothesized that: a significant association would be found between males' trauma symptoms and low relationship satisfaction in both the male and female (Hypothesis 1); and that couple communication would mediate that association (Hypothesis 2). The current study uses pre-intervention data from a larger program of research evaluating a RE program for military couples. The current paper is the first and only study of the association between trauma symptoms, observed communication, and relationship satisfaction in Australian couples.

METHOD

Participants

Participants were 31 heterosexual couples in which the male was a member of the ADF, who were recruited for a trial of RE for military couples. Inclusion criteria for the study were that couples had been married or cohabiting for at least 6 months; both partners stated a willingness to participate; and neither partner was currently receiving psychological therapy for an individual or couple-related problem. Participants were recruited through ADF newsletters and magazines, flyers, presentations to military units, and radio interviews.

Participants' mean age was 34.2 years ($SD = 9.1$) for male military personnel, slightly older than the ADF mean of 29 years (Department of Defence, 2012), and 32.9 years ($SD = 9.1$) for female partners. Twenty-six couples were married (83.9%) and five were cohabiting (16.1%). Couples had been married/cohabiting for an average of 5.9 years ($SD = 8.1$), with relationship length varying from 1 to 38 years. Four couples were dual military couples (both partners were members of the ADF), with the remaining 27 couples consisting of a male military member and a female civilian spouse.

Measures

Self-report measures

Relationship satisfaction was measured by the 16-item Couples Satisfaction Index (CSI-16; Funk & Rogge, 2007), with total satisfaction scores ranging from 0 to 81 and higher scores indicating high satisfaction. Scores below 52 define clinical couple distress (Funk & Rogge, 2007). Internal reliability was high at $\alpha = .96$.

The PTSD CheckList—Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994) was administered to measure trauma symptoms. The PCL-C was used over the PTSD CheckList—Military version (PCL-M) in order to assess the full range of trauma symptoms experienced by military personnel, and not just those resulting from combat exposure. Participants rate 17 common symptoms of posttraumatic stress on how much they had been bothered by that symptom in the past month (1 = *not at all* to 5 = *extremely*). Scores in the mid-forties and above suggest a high probability of a PTSD diagnosis (Ruggiero, Ben, Scotti, & Rabalais, 2003). Because of the low number of female military personnel in the study, only male trauma scores were used in the analyses. The scale had high internal reliability at $\alpha = .93$.

The Depression Anxiety Stress Scales—21 (DASS21; Lovibond & Lovibond, 1995) were administered in order to help determine whether scores on the PCL-C were uniquely measuring trauma over and above negative emotional state. The 21 items were rated on a 4-point scale (0 = *Did not apply to me at all* to 3 = *Applied to me very much, or most of the time*) and consisted of statements such as “I felt that I had nothing to look forward to” and “I felt scared without any good reason”. Participants' total score reflects their overall negative emotional state. Higher scores reflect a greater level of negative emotion. Internal reliability was high at $\alpha = .88$.

Observational measure

Couple communication was assessed by having couples engage in a 10-minute discussion about an area of disagreement in their relationship. These discussions were audio recorded and recordings coded using the Brief KPI (Halford, Sanders, & Behrens, 2000), an adaptation of the Kategoriensystem für Partnerschaftliche Interaktion (Couple Interaction Coding System; Hahlweg et al., 1984). Audio recordings of couple communication have been shown to be sensitive to change induced by couple therapy (Halford, Sanders, & Behrens, 1993). In the Brief KPI each 30 second interval is coded for the occurrence of positive speaker behaviors (self-disclosure, positive suggestion), positive listener behaviors (acceptance, agreement), negative speaker behaviors (criticism, negative suggestion), and negative listener behaviors (disagreement, justification, withdrawal), as well as the occurrence of positive and negative affect as coded by voice tone. Definitions of each code can be found in Table 1. Each partner's score for each code was derived from the percentage of intervals during which each behavior was observed.

TABLE 1
Brief KPI Codes and Definitions

Summary Code	Code	Code Definition
Negative listener	Disagree	Direct disagreement with partner
	Justify	Defence of own behavior or position through denial or justification
Negative speaker	Withdraw	Verbal or nonverbal lack of participation in the conversation
	Criticize	Negative judgment, condemnation, or devaluation of partner
Positive listener	Negative suggestion	Indicates need or desire for change in destructive or demanding way
	Agree	Agreement with what the partner has previously said
Positive speaker	Accept	Positive regard, acknowledgment, and empathy for partner and their position
	Self-disclose	Direct expression of own feelings and thoughts where self is revealed
Positive neutral	Positive suggestion	Statements or questions that offer specific, realistic change possibility
	Describe	Neutral statements or questions which describe event or issue
Negative affect		Angry or depressed voice tone
Positive affect		Excited or relaxed voice tone

Two research assistants coded all couple interactions. Coders received two full days of training in the Brief KPI method and were supervised throughout the coding process. Inter-coder agreement was high, with intra-class correlation coefficients (ICC) as follows: ICC = .72 for positive speaker, ICC = .90 for positive listener, ICC = .74 for negative speaker, ICC = .79 for negative listener, ICC = .95 for positive affect, and ICC = .81 for negative affect.

One criticism of research on the association between couple communication and relationship satisfaction is that often prediction equations contain many indices of communication, inflating the chance of Type 1 error (Heyman, 2001). Following Sevier, Eldridge, Jones, Doss, and Christensen (2008), an overall positive communication score was created by calculating the average of the positive speaker, positive listener, and positive affect scores. Similarly, an overall negative communication score was calculated as the mean of the negative speaker, negative listener, and negative affect scores.

Procedure

Couples expressed interest in the study by contacting the researchers by email or telephone. The lead researcher then contacted couples by phone for an initial screening interview, to discuss what participation would involve and to assess their suitability. Eligible couples were sent informed consent documents by post. Once consent was received, couples were emailed a link to an online survey, which each partner was instructed to complete individually.

Couples were then assigned to a relationship educator, who organized a suitable time to conduct the intake interview. Couples were drawn from around Australia and completed the interview via online video conferencing. During the interview the relationship educator explained that the aim of the communication task was to assess "how you normally communicate." The educator helped the couple identify a topic of current disagreement in their relationship, and then indicated the online audio recorder would be switched on and the educator would leave the call for 10 minutes. Couples then completed the 10-minute discussion task. Audio recordings were then passed on to research assistants for coding. Ethical approval for the study was received by the Human Research Ethical Review Committee at The University of Queensland and the Australian Defence Human Research Ethics Committee.

Data Analysis

In order to examine the association of trauma symptoms with relationship satisfaction in military couples we conducted a gender-specific, couple-level model analysis using MLwiN (Rasbash, Charlton, Browne, Healy, & Cameron, 2005). We first analyzed the association between trauma symptoms and satisfaction. Specifically, we predicted both male and female relationship satisfaction from the male partner's trauma symptoms. Communication was then added into the model, testing the possibility of communication as a mediator of the trauma-satisfaction relationship. The final equation for the model is as follows.

$$\begin{aligned} \text{Relationship satisfaction}_i = & [\beta_{0i} \text{ male}_i + \beta_{1i} \text{ female}_i] + [\text{PTSD_male.male}_i \\ & + \text{PTSD_male.female}_i] + [\text{PosCom_male.male}_i] \\ & + [\text{PosCom_male.female}_i] + [\text{PosCom_female.male}_i] \\ & + [\text{PosCom_female.female}_i] + [\text{NegCom_male.male}_i] \\ & + [\text{NegCom_male.female}_i] + [\text{NegCom_female.male}_i] \\ & + [\text{NegCom_female.female}_i]. \end{aligned}$$

In the above equation, male and female are dummy variables that create the gender specific estimates, and $\beta_{0i} \text{ male}_i + \beta_{1i} \text{ female}_i$ represent the intercepts of satisfaction for men and women respectively. PTSD_male.male_{*i*} and PTSD_male.female_{*i*} represent the main effects of male trauma symptoms on relationship satisfaction for males and females respectively. PosCom_male.male_{*i*} and PosCom_male.female_{*i*} represent the effect of male positive communication on male and female satisfaction, respectively, while PosCom_female.male_{*i*} and PosCom_female.female_{*i*} represent the effect of female positive communication on male and female satisfaction respectively. Similarly, NegCom_male.male_{*i*} and NegCom_male.female_{*i*} represent the effect of male negative communication on male and female satisfaction, respectively, while NegCom_female.male_{*i*} and NegCom_female.female_{*i*} represent the effect of female negative communication on male and female satisfaction respectively.

RESULTS

Table 2 presents the means, standard deviations and correlations between trauma symptoms, negative emotional state, communication, and relationship satisfaction in our sample. Mean scores on relationship satisfaction are similar to population means as described by Funk and Rogge (2007). Trauma symptom mean scores were below cut-off

TABLE 2
Correlations Between Trauma Symptoms, Negative Emotional State, Communication, and Relationship Satisfaction

Variable	Mean	SD	1.	2.	3.	4.	5.	6.	7.
1. Male trauma symptoms	24.23	8.50							
2. Male negative emotion	8.69	7.27	.69**						
3. Male positive communication	24.33	11.25	-.28	-.07					
4. Female positive communication	25.44	12.17	-.48*	-.33	.51**				
5. Male negative communication	11.14	10.01	.14	.19	-.12	.33			
6. Female negative communication	12.39	9.49	.29	.29	-.04	-.05	.50**		
7. Male relationship satisfaction	61.55	11.72	-.40*	-.31	.22	.49*	.42*	.04	
8. Female relationship satisfaction	60.50	12.11	-.44*	-.29	.14	.60**	.22	-.10	.64**

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

scores indicating a positive screen for PTSD, and only one individual scored above the clinical cut-off. Due to a high level of kurtosis (5.73), a log10 transformation was conducted on this variable before conducting the mixed effects modeling analysis, and outliers were censored to within 2 SDs of the mean. However, this did not change the pattern of results, therefore the analyses using the raw data were retained and are reported here.

Couple communication overall can be characterized as positive, in that means of positive communication were more than twice the rate of negative communication. As expected, male and female relationship satisfaction was highly correlated, as were male and female communication, both positive and negative communication. Trauma symptoms were negatively correlated with female positive communication, but had no relationship with male positive communication or negative communication for either gender. Female positive communication was strongly correlated with both male and female relationship satisfaction. Male negative communication was moderately correlated with male satisfaction, but not female satisfaction.

Following multilevel modeling conventions (Singer & Willett, 2003), the model was developed sequentially. The output is displayed in Table 3. First the unconditional model was estimated. Overall mean CSI satisfaction was 61.6 (*SE* = 11.7) for men and 60.5 (*SE* = 12.1) for women. Male trauma symptoms were then added to the equation and were reliably associated with relationship satisfaction, with male trauma symptoms predicting low satisfaction in both male and female spouses. When communication was added to the equation it significantly predicted satisfaction; female positive communication predicted high female relationship satisfaction, and male negative communication unexpectedly predicted high male relationship satisfaction.

The addition of the communication variables changed the trauma coefficient predicting female satisfaction, which was statistically reduced, $t(24) = 12.86, p < .001$, and became nonsignificant, $z = -1.76, p = .08$. When the mediator is added to a prediction equation and the effect of the independent variable on the outcome is reduced to nonsignificance, this demonstrates full mediation. Thus, there is evidence for full mediation in females. The trauma coefficient predicting male satisfaction was also statistically reduced after entering communication, $t(25) = 3.40, p = .002$, although it remained reliably different from zero. When the mediator is added to the equation and the effect of the independent variable on the outcome is reduced significantly, but still accounts for a significant proportion of variance, this demonstrates partial mediation. Although trauma symptoms were not correlated with communication in males, this is not a necessary step in order for

TABLE 3
Mixed Effects Model Prediction of Couple Relationship Satisfaction from Trauma Symptoms and Communication

Model	Model Entry Statistic		Predictor	MLM Coefficients (Standard Error)	
	χ^2	df		Male	Female
Main effect	11.61*	2	Male trauma symptoms	-.547 (.227)*	-.613 (.232)*
Mediation	93.48*	8	Male trauma symptoms	-.496 (.242)*	-.433 (.246)
			Male positive communication	.160 (.205)	-.201 (.205)
			Female positive communication	.059 (.233)	.510 (.233)*
			Male negative communication	.640 (.258)*	.127 (.270)
			Female negative communication	-.140 (.234)	.005 (.233)

Note. *df* = degrees of freedom; MLM = multilevel modeling.

* $p < .05$.

mediation to occur (MacKinnon, Fairchild, & Fritz, 2007). Therefore, there is evidence of a partial mediation effect for males. There were no partner effects of communication.

Male scores on the PCL-C were highly correlated with male DASS scores ($r = .69$, $p < .001$), raising the possibility that in the current sample the PCL-C may have been broadly measuring negative emotional state, rather than specific trauma symptoms. To investigate this further, the above mixed effects modeling analyses were conducted with male DASS scores used as a predictor of relationship satisfaction in place of male PCL-C scores. There was no evidence of an association between male negative emotional state and male or female relationship satisfaction, $\chi^2(2) = 5.78$, $p > .05$, suggesting the association between trauma symptoms and relationship satisfaction cannot be attributed broadly to negative emotional state.

DISCUSSION

The current study was the first to use an observational measure of couple communication to investigate the association between trauma symptoms, couple communication, and satisfaction in Australian military personnel and their partners. The first hypothesis was supported. Consistent with prior research (Allen et al., 2010; Erbes, 2011; Nelson Goff et al., 2007), it was found that male trauma symptom severity was associated with low relationship satisfaction for both spouses. There was no evidence of an association between relationship satisfaction and males' negative emotional state, therefore symptoms of posttraumatic stress appear to have a unique negative association with couple satisfaction that is not shared with symptoms of other common psychological disorders.

The second hypothesis, predicting communication as a mediator of the trauma-satisfaction relationship, was partially supported. Female positive communication was associated with high couple relationship satisfaction and fully mediated the association between male trauma symptoms and female relationship satisfaction. As expected, positive communication was associated with higher relationship satisfaction in females, which replicates previous research (Woodin, 2011). Although causation cannot be implied due to the cross-sectional nature of the data, it is possible that trauma symptoms in the military member contributed to a decline in their partner's positive communication, and in turn, their relationship satisfaction. Female partners might avoid discussion with a spouse affected by trauma, to avoid triggering a negative emotional reaction. This phenomenon (i.e., when partners change their behavior in response to patient trauma symptoms) is known in the literature as "partner accommodation", and has been linked previously to lower relationship satisfaction in the partner (Fredman, Vorstenbosch, Wagner, Macdonald, & Monson, 2014). The female partner might then become dissatisfied with the relationship because they are unsure how to communicate their support to their military spouse, and feel helpless in how to deal with their spouse's symptoms. Of course it is also possible that other causal links account for the association. For example, high neuroticism in the male partner might lead to high vulnerability to both communication difficulties and trauma related symptoms. Alternatively, low spousal support reflected in low positive communication might increase risk of trauma symptoms.

Male negative communication partially mediated the association between male trauma symptoms and male relationship satisfaction. Males with *high* negative communication were highly satisfied with their relationships. This finding was unexpected and needs replication. Nonetheless, the possibility that some communication labeled as negative might, at least in some couples, enhance satisfaction has been suggested previously. McNulty and Russell (2010) found in couples facing severe problems that negative communication predicted longitudinal improvement in satisfaction, while those same behaviors in couples facing minor problems predicted deteriorating relationship satisfaction. If we

assume that trauma symptoms are a serious issue for couples, which seems reasonable, then perhaps direct negative communication by the male about experiences is sometimes adaptive. In a long-term follow-up of couples who received communication skills focused RE, Baucom, Hahlweg, Atkins, Engl, and Thurmaier (2006) found females' large decreases in negative communication were predictive of relationship distress in the following 5 years. Similarly, wives' increases in positive communication predicted a paradoxical *increased* likelihood of declining relationship satisfaction for themselves and for their partners (Baucom et al., 2006; Schilling, Baucom, Burnett, Sandin-Allen, & Ragland, 2003). It was speculated that these participants might inadvertently have learned to avoid speaking their feelings during problem-solving. If emotional numbing and failure to disclose feelings is associated with low relationship satisfaction (Riggs, Byrne, Weathers, & Litz, 1998), it is possible that willingness to share one's feelings with their spouse has positive effects on the relationship, even if this is expressed using communication behaviors that are usually considered maladaptive.

It is possible that specific negative communication behaviors accounted for this effect. For example, the expression of negative affect might be useful and/or therapeutic when discussing trauma with one's spouse, whereas withdrawing or disagreement might be less likely to enhance feelings of closeness in the couple. However, previous studies have shown little evidence of association between specific communication behaviors and relationship satisfaction (Heyman, 2001; Woodin, 2011); rather it is broad classes of communication that appear to be most important. Recent innovations in RE such as Couple CARE (Halford et al., 2006) do not seek to teach couples specific behaviors (e.g., paraphrasing), but rather to review the overall pattern of positive and negative communication.

In the current study, there was no association between male negative communication and female relationship satisfaction, so spouses did not appear to be affected by this behavior. This is likely due to overall low levels of negative communication in the sample, with males on average displaying negative communication behaviors in only 11.1% of intervals. The standard deviation of 9.8% suggests many couples did not use negative communication at all.

There were no partner effects of communication. That is, female communication did not predict male satisfaction, and male communication did not predict female satisfaction. Despite this, correlations between female positive communication and male relationship satisfaction are worth noting, as is the trend ($p = .100$) for a positive correlation between positive female communication and negative male communication (which, as mentioned earlier, was also positively correlated with male satisfaction). Regression analyses like mixed effects modeling look at the effect of each predictor variable on an outcome variable after controlling for the effects of other predictor variables. When predictor variables are correlated and the effect of one variable suppresses the effect of the others, it is possible a suppressor effect is occurring. Thus, there may be a suppressor effect of male negative communication on the prediction of male satisfaction by female positive communication.

The current results are consistent with some previous research that suggests negative communication is not necessarily detrimental to relationship satisfaction, and might even have positive effects on the couple relationship. Although preliminary, this finding might have consequences for the way that communication is addressed in RE. Teaching couples specific rules on how to interact with one another, particularly to always seek to reduce negativity, might be unhelpful. An alternative is to do a functional assessment of the effect of the communication within a particular relationship. The Couple CARE programs (Halford et al., 2006) encourage self-evaluation by couples of their current communication behaviors and self-selection of communication enhancement goals, and these self-change attempts are reviewed for their effects on the relationship. Clinicians working with military personnel affected by trauma might also shift focus from reducing negative

communication to facilitating this more self-regulatory approach to teaching adaptive communication behaviors. In the context of military couples, assisting both partners to engage in open discussion, even with some negativity, might help to enhance relationship satisfaction.

Limitations

The current study was cross-sectional, which prevents any conclusions relating to the direction of causation between key variables. Future research should look at the role of couple communication in mediating the trauma–satisfaction relationship over time. Sample size was low at 31 couples; the mediation effects found in the current study require replication with a larger sample. Couples varied widely on demographic variables such as age and relationship length; of particular note, 4 of the 31 couples were dual military, heightening the possibility that part of the sample might have had a distinct relationship with trauma (i.e., both partners experiencing trauma symptoms). Dual military couples might be a special case worthy of investigation in future research with a larger sample size.

All couples in the sample were presenting for RE, and therefore might not be representative of all military couples. Couples who present for RE typically over-represent the couples at high risk of relationship problems (Halford & Bodenmann, 2013). Despite this, the current sample was overall satisfied with their relationships. Future studies should investigate the role of communication in mediating the trauma-satisfaction relationship using a sample of low satisfied or distressed couples, to determine whether this mediation occurs across all levels of relationship satisfaction.

Another potential limitation was the absence of video data in assessing couple communication. In the Brief KPI (Halford et al., 2000), positive and negative affect are usually assessed using both voice tone and body language; however, due to many participants having poor quality Internet connections, only audio was recorded to preserve the quality of the observational data. Lastly, the use of the civilian PCL scale to measure trauma symptoms might have contributed to the low level of trauma symptoms in the sample. The PCL-M is identical to the PCL-C, only the PCL-M asks respondents to think specifically of “a stressful *military* experience”. Use of the PCL-M in future studies could explore the impact on trauma scores. Additionally, due to low numbers of female military personnel only male scores were used in the analyses. Future research should look to examine trauma symptoms in female personnel.

CONCLUSION

The current study found a negative association between trauma symptoms and relationship satisfaction in a sample of Australian military couples, with couple communication at least a partial mediator of this relationship. Female positive communication accounted for a large proportion of the variance between males’ trauma symptoms and females’ relationship satisfaction. Male negative communication was associated with higher relationship satisfaction in males, an unexpected effect suggesting that negative communication is not necessarily detrimental to relationship satisfaction. These findings are in need of replication, however, suggest that communication behaviors usually considered to be negative might be adaptive in some couples. Consequently, RE programs that focus on reducing communication labeled as negative might be unhelpful. The way communication is addressed in the Couple CARE programs (Halford et al., 2006), encouraging couples’ reflection and self-selection of communication enhancement goals, seems appropriate given this finding. For military couples, RE that encourages partners to engage in

open discussion on their experiences during deployment, even with some negativity, might enhance relationship satisfaction for both partners.

REFERENCES

- Allen, E. S., Rhoades, G. K., Stanley, S. M., & Markman, H. J. (2010). Hitting home: Relationships between recent deployment, posttraumatic stress symptoms, and marital functioning for Army couples. *Journal of Family Psychology, 24*(3), 280–288. doi:10.1037/a0019405
- Andres, M. (2014). Distress, support, and relationship satisfaction during military-induced separations: A longitudinal study among spouses of Dutch deployed military personnel. *Psychological Services, 11*(1), 22–30. doi:10.1037/a0033750
- Balderrama-Durbin, C., Snyder, D. K., Cigrang, J., Talcott, G. W., Tatum, J., Baker, M. et al. (2013). Combat disclosure in intimate relationships: Mediating the impact of partner support on posttraumatic stress. *Journal of Family Psychology, 27*(4), 560–568. doi:10.1037/a0033412
- Baucom, D. H., Hahlweg, K., Atkins, D. C., Engl, J., & Thurmaier, F. (2006). Long-term prediction of marital quality following a relationship education program: Being positive in a constructive way. *Journal of Family Psychology, 20*(3), 448–455. doi:10.1037/0893-3200.20.3.448
- Bodenmann, G., & Shantinath, S. D. (2004). The Couples Coping Enhancement Training (CCET): A new approach to prevention of marital distress based upon stress and coping. *Family Relations, 53*(5), 477–484. doi:10.1111/j.0197-6664.2004.00056.x
- Campbell, S. B., & Renshaw, K. D. (2013). PTSD symptoms, disclosure, and relationship distress: Explorations of mediation and associations over time. *Journal of Anxiety Disorders, 27*(5), 494–502. doi:10.1016/j.janxdis.2013.06.007
- Caska, C. M., Smith, T. W., Renshaw, K. D., Allen, S. N., Uchino, B. N., Birmingham, W. et al. (2014). Posttraumatic stress disorder and responses to couple conflict: Implications for cardiovascular risk. *Health Psychology, 33*(11), 1273–1280. doi:10.1037/hea0000133
- Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology, 18*(1), 36–45. doi:10.1037/0893-3200.18.1.36
- de Burgh, H. T., White, C. J., Fear, N. T., & Iversen, A. C. (2011). The impact of deployment to Iraq or Afghanistan on partners and wives of military personnel. *International Review of Psychiatry, 23*(2), 192–200. doi:10.3109/09540261.2011.560144
- Department of Defence (2012). *Department of Defence Census 2011: Public report*. Canberra, Australia: Department of Defence.
- Defence Health. (2015). *Post-traumatic stress disorder*. Retrieved from <http://www.defence.gov.au/health/healthportal/PTSD.asp>
- Erbes, C. R. (2011). Couple functioning and PTSD in returning OIF soldiers: Preliminary findings from the Readiness and Resilience in National Guard Soldiers Project. In S. MacDermid Wadsworth & D. Riggs (Eds.), *Risk and resilience in U.S. military families* (pp. 47–68). New York: Springer.
- Fredman, S. J., Vorstenbosch, V., Wagner, A. C., Macdonald, A., & Monson, C. M. (2014). Partner accommodation in posttraumatic stress disorder: Initial testing of the Significant Others' Responses to Trauma Scale (SORTS). *Journal of Anxiety Disorders, 28*(4), 372–381. doi:10.1016/j.janxdis.2014.04.001
- Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*(4), 572–583. doi:10.1037/0893-3200.21.4.572
- Hahlweg, K., Reisner, L., Kohli, G., Vollmer, M., Schindler, L., & Revenstorf, D. (1984). Development and validity of a new system to analyze interpersonal communication: Kategoriensystem für partnerschaftliche Interaktion. In K. Hahlweg & N. S. Jacobson (Eds.), *Marital interaction* (pp. 182–198). New York: Guildford.
- Halford, W. K., & Bodenmann, G. (2013). Effects of relationship education on maintenance of couple relationship satisfaction. *Clinical Psychology Review, 33*(4), 512–525. doi:10.1016/j.cpr.2013.02.001
- Halford, W. K., Moore, E., Wilson, K., Dyer, C., Farrugia, C., & Judge, K. (2006). *CoupleCARE: Couple commitment and relationship enhancement (DVD & guidebook)*. Brisbane, Australia: Australian Academic Press.
- Halford, W. K., Sanders, M. R., & Behrens, B. C. (1993). A comparison of the generalization of behavioral marital therapy and enhanced behavioral marital therapy. *Journal of Consulting and Clinical Psychology, 61*(1), 51–60.
- Halford, W. K., Sanders, M. R., & Behrens, B. C. (2000). Repeating the errors of our parents? Family-of-origin spouse violence and observed conflict management in engaged couples. *Family Process, 39*, 219–235.
- Heyman, R. E. (2001). Observation of couple conflicts: Clinical assessment applications, stubborn truths, and shaky foundations. *Psychological Assessment, 13*(1), 5–35. doi:10.1037//1040-3590.13.1.5

- Hoyt, T., & Renshaw, K. D. (2014). Emotional disclosure and posttraumatic stress symptoms: Veteran and spouse reports. *International Journal of Stress Management*, 21(2), 186–206. doi:10.1037/a0035162
- Institute of Medicine (2013). *Returning home from Iraq and Afghanistan: Assessment of readjustment needs of veterans, service members, and their families. 4, LONG-TERM OUTCOMES*. Board on the Health of Select Populations, Washington, DC. Retrieved from: <http://www.ncbi.nlm.nih.gov/books/NBK206865/>
- Kline, A. P., Falca-Dodson, M. M. A., Sussner, B. P., Ciccone, D. S. P., Chandler, H. P., Callahan, L. B. A. et al. (2010). Effects of repeated deployment to Iraq and Afghanistan on the health of New Jersey Army National Guard troops: Implications for military readiness. *American Journal of Public Health*, 100(2), 276–283.
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the depression anxiety stress scales* (2nd ed.). Sydney, Australia: Psychology Foundation.
- MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation Analysis. *Annual Review of Psychology*, 58(1), 593–614. doi:10.1146/annurev.psych.58.110405.085542
- Markman, H. J., Stanley, S. M., & Blumberg, S. L. (2010). *Fighting for your marriage* (3rd ed.). San Francisco, CA: Jossey-Bass Inc.
- McNulty, J. K., & Russell, V. M. (2010). When “negative” behaviors are positive: A contextual analysis of the long-term effects of problem-solving behaviors on changes in relationship satisfaction. *Journal of Personality and Social Psychology*, 98(4), 586–604. doi:10.1037/a0017479
- Miller, M. W., Wolf, E. J., Reardon, A. F., Harrington, K. M., Ryabchenko, K., Castillo, D. et al. (2013). PTSD and conflict behavior between veterans and their intimate partners. *Journal of Anxiety Disorders*, 27(2), 240–251. doi:10.1016/j.janxdis.2013.02.005
- Monson, C., Fredman, S. J., Macdonald, A., Pukay-Marin, N. D., Resick, P. A., & Schnurr, P. P. (2012). Effect of cognitive-behavioral couple therapy for PTSD: A randomized controlled trial. *Journal of the American Medical Association*, 308, 700–709.
- Monson, C. M., & Snyder, D. K. (2012). Couple-based interventions for military and veteran families: Evidence and rationale. In D. K. Snyder & C. M. Monson (Eds.), *Couple-based interventions for military and veteran families: A practitioner's guide* (pp. 3–12). New York: Guilford Press.
- 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(3), 344–353. doi:10.1037/0893-3200.21.3.344
- Rasbash, J., Charlton, C., Browne, W. J., Healy, M., & Cameron, B. (2005). *MLwiN version 2.02*. University of Bristol, Centre for Multilevel Modelling.
- Renshaw, K. D., Allen, E. S., Carter, S. P., Markman, H. J., & Stanley, S. M. (2014). Partners' attributions for service members' symptoms of combat-related posttraumatic stress disorder. *Behavior Therapy*, 45(2), 187–198. doi:10.1016/j.beth.2013.10.005
- 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(4), 586–594. doi:10.1037/0893-3200.22.3.586
- Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress*, 11(1), 87–101. doi:10.1023/a:1024409200155
- Rona, R. J., Fear, N. T., Hull, L., Greenberg, N., Earnshaw, M., Hotopf, M. et al. (2007). Mental health consequences of overstretch in the UK armed forces: First phase of a cohort study. *British Medical Journal*, 335(7620), 603–607. doi:10.1136/bmj.39274.585752.BE
- Ruggiero, K. J., Ben, K. D., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD Checklist—Civilian version. *Journal of Traumatic Stress*, 16(5), 495–502. doi:10.1023/a:1025714729117
- Sayers, S. L., Farrow, V. A., Ross, J., & Oslin, D. W. (2009). Family problems among recently returned military veterans referred for a mental health examination. *Journal of Clinical Psychiatry*, 10, e1–e8.
- Schilling, E. A., Baucom, D. H., Burnett, C. K., Sandin-Allen, E., & Ragland, L. (2003). Altering the course of marriage: The effect of PREP communication skills acquisition on couples' risk of becoming maritally distressed. *Journal of Family Psychology*, 17(1), 41–53. doi:10.1037/0893-3200.17.1.41
- Sevier, M., Eldridge, K., Jones, J., Doss, B. D., & Christensen, A. (2008). Observed communication and associations with satisfaction during traditional and integrative behavioral couple therapy. *Behavior Therapy*, 39(2), 137–150. doi:10.1016/j.beth.2007.06.001
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- Weathers, F. W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist—Civilian version*. Boston, MA: National Center for PTSD, Behavioral Science Division.
- Woodin, E. M. (2011). A two-dimensional approach to relationship conflict: Meta-analytic findings. *Journal of Family Psychology*, 25(3), 325–335. doi:10.1037/a0023791