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ABSTRACT

Affectionate communication may play a key role in how military couples navigate the transition from deployment to reintegration. Informed by relational turbulence theory, this study considered how the trajectory of relational turbulence experienced by military couples over time predicted their verbal and nonverbal expressions of affection. Online self-report data were gathered from 268 U.S. military couples across eight months beginning at homecoming. Relational turbulence increased over time and affectionate communication decreased over time. Also as predicted, the trajectory of increasing relational turbulence corresponded with greater declines in verbal and nonverbal expressions of affection. These results advance relational turbulence theory, illuminate the trajectory of affectionate communication over time, and inform ways to assist military couples upon reunion after deployment.

KEYWORDS:

Affectionate communication, deployment, military couples, reintegration after deployment, relational turbulence

The transition from deployment to reintegration has the potential to spark an intense cascade of both positive and negative experiences for military couples after the service member returns home (Bommarito et al., 2017; Sherman et al., 2015). Military couples may feel overjoyed to be together again and relieved that their loved ones are safe (Karakurt et al., 2013; Knobloch & Theiss, 2012), but they also may be caught off guard by changes in each other's personality and disappointed by unmet expectations (Knobloch, Basinger, et al., 2016; Knobloch & Theiss, 2012). Such contradictory experiences are echoed by research illuminating tumultuous aspects of reintegration (Clark et al., 2018; McCreary et al., 2014). For example, many military couples describe experiencing personal growth from deployment and having more appreciation for family relationships (Knobloch & Theiss, 2012; Mallonee et al., 2020; O'Neal et al., 2018), but sizeable percentages also report substantial difficulty with reintegration (Balderrama-Durbin et al., 2015; U.S. Department of Defense, 2019b) and more problems in their relationship after deployment compared to before deployment (Werber et al., 2013). Volatility also is evident in data showing that returning service members and at-home partners are susceptible to symptoms of depression, anxiety, and posttraumatic stress during the post-deployment transition (Gorman et al., 2011; Kim et al., 2010; Leroux et al., 2016).

Expressing affection is a communicative process with particular implications for the well-being of military couples upon reunion after deployment. *Affectionate communication* occurs when people intentionally display feelings of caring and closeness toward a partner (Floyd, 2006, 2019; Floyd & Morman, 1998). Re-establishing physical and emotional intimacy are pivotal tasks facing military couples after homecoming (e.g., Bowling & Sherman, 2008; Freytes et al., 2017; Marini et al., 2017). Military couples may feel simultaneously anxious and excited about expressing affection after months apart (e.g., Baptist et al., 2011; Pincus et al., 2001). Importantly, returning service members and at-home partners who express their emotions openly report better psychological health during the transition from deployment to reintegration (e.g., Marini et al., 2017).

Relational turbulence theory (Solomon et al., 2016) offers a conceptual framework for theorizing about changes in affectionate communication over time during reintegration after deployment. *Relational turbulence* is an enduring sense of a relationship as tumultuous, volatile, and fragile (Solomon et

al., 2016). The theory emphasizes the trajectory of relational turbulence as a central predictor of people's verbal and nonverbal communication behavior during times of transition (Solomon et al., 2019). We draw on the theory to examine how changes in the magnitude of relational turbulence experienced by military couples over time predict corresponding changes in their affectionate communication across the post-deployment transition. We present longitudinal data from 268 military couples in an effort to extend relational turbulence theory, document changes in affectionate communication over time, and help military couples communicate more effectively after homecoming.[1]

Relational turbulence and affectionate communication

Theorizing about relational turbulence has progressed within the field of interpersonal communication for almost two decades. Such theorizing began with the *relational turbulence model*, which considered why people are cognitively, emotionally, and communicatively reactive during times of transition (Solomon & Knobloch, 2004). The model proposed that individuals react strongly to specific episodes because they are unsure about their relationship (*relational uncertainty*) and experience interruptions to their everyday routines (*interference and facilitation from partners*). Although the model enjoyed empirical support, it lacked explicit attention to causal mechanisms, which led Solomon et al. (2016) to expand the model into a theory.

Relational turbulence theory moves beyond the model's focus on reactivity in specific episodes to spotlight relational turbulence as a key predictor of broader communication processes during times of transition. Accordingly, in this study, we consider the portion of the theory dealing with the effects of relational turbulence on communication. The theory asserts that relational turbulence emerges from the accumulation of people's reactivity to everyday events over time and infuses all aspects of communication functioning (Knobloch & Theiss, 2018; Solomon et al., 2019). Moreover, the theory contends that relational turbulence impedes people's ability to communicate effectively because they are preoccupied with the turmoil and unable to coordinate their conversation. In other words, relational turbulence disrupts the fabric of interaction by hampering people's efforts to express themselves both verbally and nonverbally. Examples of communication processes likely to be affected by relational turbulence include navigating sexual intimacy, managing conflict, and interpreting relational messages (Solomon et al., 2016).

A major gap in the literature involves the trajectory of relational turbulence. According to the theory, the amount of relational turbulence individuals experience should change over time as a transition unfolds (Solomon et al., 2019). The specific form of the trajectory, however, is likely to depend on the nature of the transition. In the context of the post-deployment transition, military couples may experience an early honeymoon period that gradually erodes as the challenges of resuming daily life emerge (Pincus et al., 2001; Sahlstein et al., 2009; Sayers, 2011). Accordingly, we expect relational turbulence to increase during the months after the service member returns home.

Only three previous studies have collected longitudinal data on relational turbulence (see Brisini & Solomon, 2020; Knobloch, McAninch, et al., 2016; Knobloch & Theiss, 2010), and of those projects, only Knobloch, McAninch, et al. (2016) mapped the trajectory of relational turbulence over time. They gathered reports from 118 military couples at monthly intervals beginning within 30 days after the service member's homecoming. Although their findings showed a flat trajectory of relational turbulence over time, they collected only three waves of data during the post-deployment transition. A more robust

test is warranted to (a) evaluate a key premise of relational turbulence theory about change over time, (b) map the transition from deployment to reintegration more comprehensively, and (c) guide practitioners about the optimal timing for support services after military personnel return home. To that end, we propose a first hypothesis:

> H_1: Relational turbulence increases over time among military couples during the post-deployment transition.

Affectionate communication is an important part of navigating the transition from deployment to reintegration (e.g., Bowling & Sherman, 2008; Freytes et al., 2017; Marini et al., 2017). More broadly, affectionate communication is a fundamental aspect of relationship development (Floyd, 2006; Floyd & Morman, 1998) that varies over time within marriage (e.g., Huston et al., 2001; Lavner et al., 2014; Niehuis et al., 2016). Affectionate communication also furnishes extensive health benefits, particularly with respect to cardiovascular outcomes, stress, mental health, physical pain, and sleep quality (Floyd, 2016; Floyd & Riforgiate, 2008; Hesse et al., 2021). Notably, expressing affection to a partner is even more beneficial than receiving affection from a partner (Hesse et al., 2021).

People can express affection directly to a partner using both verbal and nonverbal channels (Floyd, 2019; Floyd & Morman, 1998). *Verbal expressions of affection* include saying "I love you," describing feelings of closeness, and emphasizing how much a partner is valued. *Nonverbal expressions of affection* include hugging, kissing, holding hands, putting an arm around a partner, and standing in close proximity. Individuals also can convey affection to a partner indirectly by providing social, instrumental, and emotional support. Several studies have investigated social support between military couples upon reunion following deployment (Karakurt et al., 2013; Mallonee et al., 2020; Ross et al., 2020) and have shown that relational turbulence is negatively associated with perceptions of a partner's support among returning service members and at-home partners (Knobloch, Basinger, et al., 2018). To complement work on social support during the post-deployment transition, we focus our efforts on examining affectionate communication via verbal and nonverbal communication behaviors that encode affectionate messages directly.

Our logic suggests a pair of hypotheses about affectionate communication upon reunion. First, if military couples enjoy an initial celebratory phase followed by escalating stressors as they work to establish a new normal (Pincus et al., 2001; Sahlstein et al., 2009), then they should report the highest amount of affectionate communication at homecoming and declining amounts of affectionate communication afterwards. Second, if relational turbulence theory is correct that people who come to view their relationship as tumultuous will have difficulty communicating both verbally and nonverbally (Solomon et al., 2016, 2019), then an escalating trajectory of relational turbulence among returning service members and at-home partners during the post-deployment transition should predict a steeper decrease in affectionate communication as time passes. Note that our thinking on the latter point is wholly dynamic over time: Emerging relational turbulence should predict diminishing affectionate communication across the transition from deployment to reintegration.

We are not aware of any work that has examined the link between relational turbulence and affectionate communication, but cross-sectional research has documented associations among related constructs. For example, relational turbulence corresponds with negatively-valenced aspects of communication such as hurtful messages (McLaren et al., 2011) and partner unsupportiveness (Knobloch, Basinger, et al., 2018). Affectionate communication corresponds with positively-valenced

aspects of relationships such as marital quality, emotional intimacy, relationship satisfaction, and commitment (Hesse & Gibbons, 2019; Hesse & Tian, 2020). Thus, we advance two longitudinal hypotheses deduced from our theorizing and consistent with cross-sectional findings:

> H_2: Verbal and nonverbal expressions of affection decrease over time among military couples during the post-deployment transition.
>
> H_3: Increases in relational turbulence over time predict decreases in verbal and nonverbal expressions of affection over time among military couples during the post-deployment transition.

Method

Our study surveyed 268 U.S. military couples once per month for eight consecutive months. The data came from a larger project involving 555 military couples (see Knobloch, Knobloch-Fedders, et al., 2018; Knobloch et al., 2019; Knobloch-Fedders et al., 2020). The full sample from the larger project completed measures of central interest to the funding agency (Knobloch, Knobloch-Fedders, et al., 2018; Knobloch et al., 2019; Knobloch-Fedders et al., 2020), and to diversify the project, the first half of the sample completed measures of relational turbulence and affectionate communication, and the second half of the sample completed measures of deception and trust (Knobloch et al., 2021). Data collection occurred online from April 2014 to June 2015.

To assess people's immediate perceptions of homecoming, data collection for Wave 1 occurred within a week after the service member's return. Data collection continued through Wave 8 to provide coverage beyond the traditional 6-month definition of the post-deployment transition (Pincus et al., 2001). Monthly intervals were selected for the timing of data collection to cohere with theorizing about month-by-month changes in military couple communication across the deployment cycle (Pincus et al., 2001).

Before beginning recruitment, we secured approval from the Institutional Review Boards of our universities and the Human Research Protection Office of the U.S. Army Medical Research and Materiel Command. Then, we advertised the study through (a) military family life professionals across the country, (b) military chaplains, (c) military installation newspapers, and (d) social media platforms geared toward military couples. Military couples volunteered by email if they met three eligibility requirements: (a) partners had separate email accounts, (b) one or both partners had recently completed a deployment, and (c) both partners were willing to provide Wave 1 data within a week after homecoming.

Procedures

We emailed each person immediately after homecoming to confirm consent. After both partners replied, we emailed individuals a unique login, a temporary password, and a link to the Wave 1 questionnaire. Participants who logged into the Wave 1 questionnaire for the first time registered a permanent password for use throughout the study. On the fourth day and the sixth day after homecoming, we sent reminder emails to those who had not yet completed the Wave 1 questionnaire, and on the seventh day, the logins expired. We excluded 19 military couples on the eighth day for not meeting the 1-week deadline.

The 268 military couples eligible for subsequent waves followed the same data collection process each month. On the monthly anniversary of homecoming, we emailed individuals a link to the next questionnaire, and we followed up with reminder emails on the fourth day and the sixth day. Participants had a 7-day window to access the questionnaire before the login expired. Upon submitting each wave of data, individuals received a $15 e-gift card. If they completed all eight waves, they received an additional $50 e-gift card.

Participants

Participants were 536 individuals (*n* = 267 men, *n* = 269 women) who were part of 268 U.S. military couples (*n* = 267 mixed-sex couples, *n* = 1 same-sex couple) recently reunited after deployment. They lived in 35 U.S. states, the District of Columbia, and Guam.

Individuals ranged in age from 20 to 59 years old (*M* = 31.43 years, *SD* = 6.28 years). They reported themselves as White (80%), Latino/a (9%), African American (5%), Asian or Pacific Islander (3%), American Indian or Alaskan Native (2%), or other (1%). Their highest level of education was some high school (1%), high school graduate (13%), some college (30%), associate's degree (16%), bachelor's degree (29%), or advanced graduate degree (11%). Most household incomes fell in the range of $21,000 to $40,000 (22%), $41,000 to $60,000 (31%), or $61,000 to $80,000 (19%).

Participants had been involved in their romantic relationship for an average of 8.71 years (*SD* = 5.49 years). The majority of military couples were married (94%), were composed of a male returning service member and a female at-home partner (98%), lived in the same residence after homecoming (97%), and were parents (74%).

Most at-home partners were civilians (87%); others were current service members (9%) or veterans (4%). Returning military personnel were members of the U.S. Army (52%), Navy (11%), Air Force (11%), Marines (10%), Army National Guard (11%), Air National Guard (4%), or Coast Guard (1%). The length of their deployment averaged 7.71 months (*SD* = 2.39 months), and their deployment mission involved combat (63%), peacekeeping (17%), training (11%), relief (3%), or undisclosed activity (6%). Approximately 29% were returning home from their first deployment; 71% had previous deployment experience.

Participants provided Wave 1 data an average of 4.23 days (*SD* = 1.85 days) after reunion. Retention rates were relatively high across waves: The percentage of the sample participating at each wave was 92% at Wave 2, 91% at Wave 3, 88% at Wave 4, 89% at Wave 5, 88% at Wave 6, 86% at Wave 7, and 87% at Wave 8.

Measures

The questionnaire at Wave 1 assessed a variety of single-item control variables (i.e., prior deployment experience, length of deployment, length of romantic relationship, household income) and multi-item control variables (i.e., combat exposure during deployment, relationship satisfaction, depressive symptoms). The questionnaires at all waves solicited people's reports of relational turbulence and affectionate communication. We corroborated the unidimensionality of the multi-item measures using confirmatory factor analysis and estimated reliability using McDonald's (1999) omega (ω).[2] See Online Supplemental Table A for the descriptive statistics and the results of the confirmatory factor analyses by wave.

Combat exposure during deployment

At Wave 1, we measured combat exposure during deployment as a control variable, given evidence that it predicts both individual and family challenges after homecoming (Dillon et al., 2018; Mustillo et al., 2014). Returning service members completed Keane et al.'s (1989) Combat Exposure Scale, and following Renshaw et al. (2008), at-home partners completed the same seven items with instructions to respond with their best understanding of what their partner experienced during deployment. Sample items included the following: (a) went on combat patrols, (b) fired rounds at the enemy, and (c) was in danger of being injured or killed (0 = *never*, 4 = *51 or more times*). We averaged the responses to calculate a score for each person (M = 0.61, SD = 0.71, range = 0.00–4.00, ω = .80$_{[95\%\ CI:\ .76,\ .83]}$).

Relationship satisfaction

Another multi-item control variable was relationship satisfaction because of its associations with both relational turbulence (Solomon & Brisini, 2017) and affectionate communication (Hesse & Gibbons, 2019). Participants completed the 4-item Couples Satisfaction Index (CSI; Funk & Rogge, 2007) at Wave 1. The items in the scale use two different response metrics: (a) please indicate the degree of happiness, all things considered, of your relationship (0 = *extremely unhappy*, 6 = *perfect*), (b) how warm and comfortable is your relationship with your partner? (c) how rewarding is your relationship with your partner? and (d) in general, how satisfied are you with your relationship? (0 = *not at all*, 5 = *completely*). Following Funk and Rogge (2007), we calculated the scale by summing the responses (M = 16.95, SD = 3.49, range = 2.00–21.00, ω = .86$_{[95\%\ CI:\ .82,\ .89]}$).

Depressive symptoms

We assessed depressive symptoms at Wave 1 as a control variable due to prior work showing a connection with affectionate communication (Floyd, 2014; Hesse & Floyd, 2019). Participants completed the Beck Depression Inventory-II (Beck et al., 1996) by rating the severity of 21 symptoms on a 4-point scale. We computed a score for each person by summing the responses (M = 27.15, SD = 7.33, range = 21.00–84.00, ω = .92$_{[95\%\ CI:\ .90,\ .94]}$).

Relational turbulence

Participants responded to Knobloch's (2007) measure of relational turbulence at each wave. Five unidimensional items completed the stem "At the present time, my romantic relationship is … " (a) chaotic, (b) turbulent, (c) in turmoil, (d) tumultuous, and (e) stressful (1 = *strongly disagree*, 6 = *strongly agree*). The items were averaged to form the measure. Descriptive statistics indicated relatively low levels of relational turbulence across the sample (M = 1.71, SD = 1.21, range = 1.00–6.00, ω = .95$_{[95\%\ CI:\ .95,\ .96]}$). At any given wave, scores were distributed across the full range of the measure, but the percentage of participants reporting no relational turbulence ranged between 43% and 56%.

Affectionate communication

Items adapted from the Affectionate Communication Index (Floyd & Morman, 1998) measured verbal and nonverbal expressions of affection. The items were prefaced by a stem that read "In the past week, how often did you do the following things as a way to express affection for your partner?" (1 = *almost never*, 3 = *sometimes*, 5 = *a lot*). Four summed items formed a unidimensional measure of *verbal affection*: (a) say "I love you" to your partner, (b) say how important your partner is to you, (c) say your partner is one of your best friends, and (d) say "I care about you" to your partner (M = 15.89, SD = 4.21, range = 4.00–20.00, ω = .88$_{[95\%\ CI:\ .87,\ .89]}$). Seven summed items created a unidimensional measure of *nonverbal affection*: (a) kiss your partner on the lips, (b) hug your partner, (c) wink at your partner, (d)

hold your partner's hand, (e) give your partner a massage or backrub, (f) sit close to your partner, and (g) put your arm around your partner (M = 27.21, SD = 6.74, range = 7.00–35.00, ω = .90$_{[95\%\ CI:\ .89,\ .90]}$).

Results

Preliminary analyses

An initial preliminary analysis compared the Wave 1 data for returning service members (n = 268) versus at-home partners (n = 268). Results of paired samples t-tests revealed that at-home partners (M = 28.49, SD = 7.93) reported more depressive symptoms at Wave 1 than returning service members (M = 25.83, SD = 6.41), $t(267) = 4.75$, $p < .001$, $d = .29$. No differences were apparent for people's reports of combat exposure during deployment, relationship satisfaction, relational turbulence, or affectionate communication.

A second preliminary analysis examined the Wave 1 bivariate correlations (see Table 1). Among returning service members, combat exposure during deployment was positively associated with depressive symptoms. Among at-home partners, relationship satisfaction was negatively correlated with depressive symptoms and relational turbulence, and it was positively correlated with affectionate communication. Among both returning service members and at-home partners, (a) depressive symptoms were positively associated with relational turbulence and negatively associated with affectionate communication, (b) relational turbulence was negatively associated with affectionate communication, and (c) the two kinds of affectionate communication were positively associated. Within couples, all of the variables were positively correlated between returning service members and at-home partners.

Table 1. Bivariate correlations at Wave 1.

	V1	**V2**	**V3**	**V4**	**V5**	**V6**
V1: Combat Exposure	**.72*****	−.04	.22**	.11	.01	−.05
V2: Relationship Satisfaction	.05	**.40*****	−.04	−.09	.11	.10
V3: Depressive Symptoms	.00	−.16**	**.22*****	.46***	−.24***	−.30***
V4: Relational Turbulence	.01	−.19**	.46***	**.49** ***	−.42 ***	−.49***
V5: Verbal Affection	.06	.18**	−.38***	−.56***	**.44** ***	.78***
V6: Nonverbal Affection	.06	.20**	−.36***	−.62***	.80***	**.57*****

Note: N = 268 returning service members, at-home partners, or military couples. Wave 1 bivariate correlations for returning service members appear above the diagonal, Wave 1 bivariate correlations for at-home partners appear below the diagonal, and Wave 1 within-couple correlations appear on the diagonal and are bolded.
**$p < .01$, ***$p < .001$.

Substantive analyses

Unconditional models

We tested our hypotheses in three stages. The first stage involved estimating unconditional models to map the trajectory of relational turbulence (H_1) and affectionate communication (H_2) over time. To that end, we used structural equation modeling to compute dyadic growth curve models analyzing the data from returning service members and at-home partners together. These unconditional models included

within-couple correlations (a) between the intercepts and slopes and (b) between the residuals at each wave (Kenny et al., 2006). Full information maximum likelihood estimation was used to handle missing data.

As shown in Figure 1 and Table 2, relational turbulence increased over time for both returning service members and at-home partners, although they reported quite low levels of relational turbulence overall. Also for both returning service members and at-home partners, verbal and nonverbal affection decreased over time. These findings support H_1 and H_2. Whereas the means of the intercepts and slopes reported in Table 2 represent the averages across the sample, the variance parameters displayed in Table 2 demonstrate that all of the intercepts and the slopes contained significant variability within the sample.

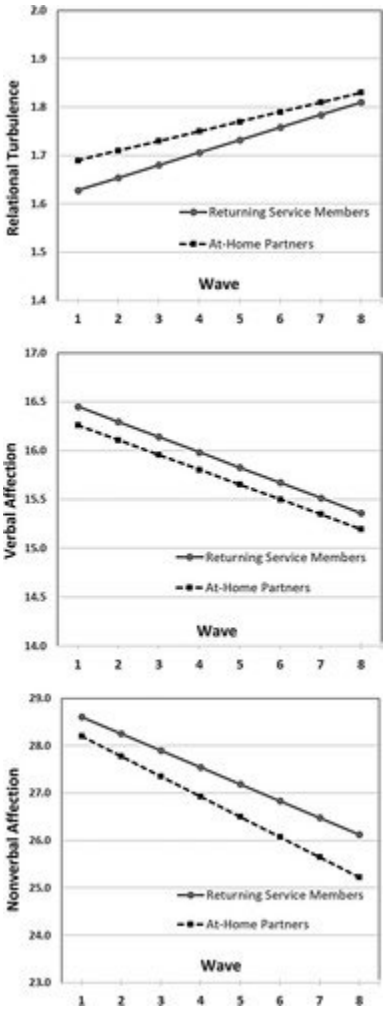

Figure 1. Plots of relational turbulence, verbal affection, and nonverbal affection over time.
Note: Results of the unconditional growth curve models of relational turbulence, verbal affection, and nonverbal affection across eight waves for returning service members and at-home partners. Wave 1 occurred within a week after homecoming, and the other waves were spaced at monthly intervals afterwards.

Table 2. Unstandardized growth parameters for the unconditional models.

	Returning service members		**At-home partners**	
Relational Turbulence	**Estimate**	**Variance**	**Estimate**	**Variance**
Intercept	1.63***	0.64***	1.69***	0.81***
Slope	0.03*	0.01***	0.02*	0.01***
r of Intercept and Slope	0.11		0.32*	
Within-Couple Correlations: *r* for intercepts = 0.66 and *r* for slopes = 0.76, both $p < .001$ Model Fit: $\chi^2(114) = 281.72$, NNFI = .93, CFI = .94, RMSEA = .07 [90% CI = .06 to .09]				
Verbal Affection	Estimate	Variance	Estimate	Variance
Intercept	16.45***	10.06***	16.26***	12.08***
Slope	−0.16***	0.17***	−0.15***	0.13***
r of Intercept and Slope	−0.09		0.10	
Within-Couple Correlations: *r* for intercepts = 0.50 and *r* for slopes = 0.61, both $p < .001$ Model Fit: $\chi^2(114) = 450.65$, NNFI = .88, CFI = .90, RMSEA = .11 [90% CI = .10 to .12]				
Nonverbal Affection	Estimate	Variance	Estimate	Variance
Intercept	28.61***	21.37***	28.21***	25.38***
Slope	−0.36***	0.57***	−0.43***	0.41***
r of Intercept and Slope	−0.05		0.25*	
Within-Couple Correlations: *r* for intercepts = 0.58 and *r* for slopes = 0.75, both $p < .001$ Model Fit: $\chi^2(114) = 355.90$, NNFI = .90, CFI = .92, RMSEA = .09 [90% CI = .08 to .10]				

Note: $N = 268$ military couples.
*$p < .05$, ***$p < .001$.

Two-part preliminary conditional models

Our original plan for testing H_3 was to add predictors to the dyadic growth curve models to examine the trajectory of relational turbulence predicting changes in affectionate communication over time. Unfortunately, the dyadic growth curve models with predictors failed to converge, likely because of the sizeable percentage of participants reporting no relational turbulence at any given wave (range = 43% to 56%). As an alternative, we evaluated predictors of affectionate communication using a two-part random-effects model for semi-continuous longitudinal data (see Olsen & Schafer, 2001).

A two-part random-effects model is suitable for handling variables distributed with some scores converging around a single value and other scores continuously distributed. Two-part models isolate the binary portion of the variable's distribution (e.g., no relational turbulence versus some relational turbulence) from the continuous portion of the variable's distribution (e.g., the amount of relational turbulence if present). We calculated the two-part models in M*plus* following the procedures described by Xu et al. (2014), including fixing the variance and the covariances of the slope for the binary portion of relational turbulence to zero.

For the two-part models to converge, the model specification needed to be simplified in a pair of ways. First, because the binary and continuous intercepts for relational turbulence were very highly correlated, we estimated the models using a single intercept representing both intercept components. Second, although our logic allows for the possibility of people's relational turbulence predicting both their own affectionate communication (*actor effects*) and their partner's affectionate communication (*partner effects*), a full actor-partner interdependence approach (see Kenny et al., 2006) was computationally too complex given the sample size. As an alternative, we examined one person's relational turbulence predicting both their own and their partner's affectionate communication. In other words, the dependent variables for both partners were included in each model, but the independent variables were estimated in separate analyses for returning service members and at-home partners.

The two-part preliminary conditional models (depicted in Online Supplemental Figure A) contained (a) one person's relational turbulence as the independent variable and (b) both people's verbal or nonverbal affection as the dependent variable. Each of the four models evaluated six associations: (a) the single intercept of relational turbulence predicting the intercept of verbal or nonverbal affection for both partners, (b) the single intercept of relational turbulence predicting the slope of verbal or nonverbal affection for both partners, and (c) the slope of the continuous portion of relational turbulence predicting the slope of verbal or nonverbal affection for both partners.

Results were identical for verbal and nonverbal affection (see Table 3). When individuals reported more relational turbulence at Wave 1, both partners expressed less verbal and nonverbal affection at homecoming. Wave 1 relational turbulence did not correspond with the change in affectionate communication over time. In terms of H_3, the findings for the continuous slope of relational turbulence predicting affectionate communication were consistent with expectations. For individuals reporting relational turbulence, an increasing trajectory of relational turbulence over time coincided with a steeper decline in both people's reports of verbal and nonverbal affection over time. The magnitude of the associations exceeded the threshold for statistical significance in six of the eight tests and approached statistical significance in the other two tests. These results are largely compatible with H_3.

Table 3. Unstandardized coefficients from two-part preliminary conditional models predicting affectionate communication.

	Returning service member's verbal affection		At-home partner's verbal affection	
	Intercept	Slope	Intercept	Slope
Returning Service Member's Predictors				
Intercept of Relational Turbulence	−0.63***	0.02	−0.55***	0.04
Continuous Slope of Relational Turbulence	–	−1.11**	–	−1.08*
R^2	0.29	0.25	0.18	0.21
At-Home Partner's Predictors				
Intercept of Relational Turbulence	−0.37***	0.05	−0.83***	0.04
Continuous Slope of Relational Turbulence	–	−1.11††	–	−1.01†
R^2	0.09	0.18	0.37	0.24
	Returning service member's nonverbal affection		At-home partner's nonverbal affection	
	Intercept	Slope	Intercept	Slope
Returning Service Member's Predictors				
Intercept of Relational Turbulence	−0.93***	0.08	−0.81***	0.03
Continuous Slope of Relational Turbulence	–	−2.68***	–	−1.62*
R^2	0.31	0.34	0.19	0.21
At-Home Partner's Predictors				
Intercept of Relational Turbulence	−0.66***	0.17	−1.25***	0.04
Continuous Slope of Relational Turbulence	–	−2.92*	–	−1.89*
R^2	0.13	0.29	0.40	0.39

Note: N = 268 military couples. The variance and the covariances of the slope for the binary portion of relational turbulence were fixed to zero.
† p = .065, $^{\dagger\dagger}p$ = .055, *p < .05, **p < .01, ***p < .001.

Two-part final conditional models

In the third stage of the substantive analyses, we computed final conditional models evaluating whether the findings for H_3 held after covarying a set of personal attributes, deployment characteristics, and relationship qualities. To that end, we repeated the two-part preliminary conditional models but added seven control variables: (a) prior deployment experience for the returning service member (1 = yes, 0 = no), (b) deployment length, (c) romantic relationship length, (d) household income, (e) the service member's combat exposure during deployment, (f) relationship satisfaction at homecoming, and (g) depressive symptoms at homecoming (see Table 4 and Online Supplemental Figure B). Results showed that 12–43% of the variance in the intercepts and 22–47% of the variance in the slopes were explained by the final conditional models.

Table 4. Unstandardized coefficients from two-part final conditional models predicting affectionate communication.

	Returning service member's verbal affection		**At-home partner's verbal affection**	
	Intercept	**Slope**	**Intercept**	**Slope**
Returning Service Member's Predictors				
Prior Deployment Experience	−0.26	0.05	−0.37	0.01
Length of Deployment	0.16 *	−0.03	−0.03	0.00
Length of Romantic Relationship	−0.02	0.00	−0.08	0.01
Household Income	−0.12	0.02	−0.02	−0.03
Combat Exposure During Deployment	0.55 *	−0.05	0.46	0.01
Wave 1 Relationship Satisfaction	0.05	0.00	0.07	0.00
Wave 1 Depressive Symptoms	−0.05	0.01	0.03	0.01
Intercept of Relational Turbulence	−0.63***	0.02	−0.60***	0.04
Continuous Slope of Relational Turbulence	–	−1.27**	–	−1.25**
R^2	0.36	0.33	0.23	0.28
At-Home Partner's Predictors				
Prior Deployment Experience	−0.05	0.04	−0.16	0.01
Length of Deployment	0.13	−0.03	−0.02	0.00
Length of Romantic Relationship	0.00	0.00	−0.06	0.01
Household Income	−0.04	0.02	−0.05	−0.02
Combat Exposure During Deployment	0.35	−0.02	0.48	0.03
Wave 1 Relationship Satisfaction	0.01	0.00	0.03	0.01
Wave 1 Depressive Symptoms	0.05	0.00	−0.04	0.00
Intercept of Relational Turbulence	−0.46***	0.06	−0.74***	0.04

Continuous Slope of Relational Turbulence	–	−1.17†	–	−1.14 †
R^2	0.12	0.22	0.40	0.28
	Returning service member's nonverbal affection		At-home partner's nonverbal affection	
	Intercept	Slope	Intercept	Slope
Returning Service Member's Predictors				
Prior Deployment Experience	−0.59	0.16	−0.66	0.04
Length of Deployment	0.19	−0.06*	0.09	−0.03
Length of Romantic Relationship	−0.05	0.00	−0.10	0.01
Household Income	−0.16	0.03	0.14	−0.02
Combat Exposure During Deployment	0.48	−0.09	0.89*	0.04
Wave 1 Relationship Satisfaction	0.07	0.01	0.12*	0.01
Wave 1 Depressive Symptoms	−0.08	0.02	0.06	0.02*
Intercept of Relational Turbulence	−0.91***	0.09	−0.92***	0.02
Continuous Slope of Relational Turbulence	–	−3.13***	–	−1.90*
R^2	0.37	0.46	0.26	0.29
At-Home Partner's Predictors				
Prior Deployment Experience	−0.22	0.15	−0.31	0.06
Length of Deployment	0.15	−0.06*	0.12	−0.02
Length of Romantic Relationship	−0.01	0.01	−0.06	0.01
Household Income	−0.01	0.00	0.15	−0.02
Combat Exposure During Deployment	0.08	0.06	0.77*	0.06
Wave 1 Relationship Satisfaction	0.00	0.02	0.05	0.00
Wave 1 Depressive Symptoms	0.08	−0.01	−0.02	0.02*
Intercept of Relational Turbulence	−0.81***	0.22	−1.19***	0.02
Continuous Slope of Relational Turbulence	–	−3.37*	–	−2.13*
R^2	0.15	0.37	0.43	0.47

The control variables were largely unrelated to affectionate communication (see Table 4), but a few associations were apparent for the characteristics of deployment. When military personnel reported returning from a longer deployment, they reported expressing more verbal affection at homecoming. Deployment length also corresponded with a steeper decline in the nonverbal affection reported by returning service members over time. When returning service members reported experiencing more combat exposure during deployment, they reported expressing more verbal affection at homecoming,

and at-home partners reported expressing more nonverbal affection at homecoming. Similarly, when at-home partners perceived that the returning service member experienced more combat exposure during deployment, at-home partners reported expressing more nonverbal affection at homecoming.

One association each was apparent for people's Wave 1 relationship satisfaction and depressive symptoms. More relationship satisfaction reported by returning service members at Wave 1 corresponded with more nonverbal affection reported by at-home partners at homecoming. In addition, when both partners reported more depressive symptoms at Wave 1, the decline in nonverbal affection reported by at-home partners was less steep over time.

With the control variables added, relational turbulence continued to predict verbal and nonverbal affection as in the preliminary conditional models (see Table 4). These findings are congruent with H_3.[3]

Discussion

The literature is replete with calls to evaluate the dynamic nature of relational turbulence (Solomon et al., 2019), to investigate changes in affectionate communication over time (Hesse & Gibbons, 2019; Hesse & Tian, 2020), and to identify empirically grounded recommendations for helping military couples communicate more effectively during the post-deployment transition (Bommarito et al., 2017; Freytes et al., 2017). Our goal was to investigate the link between the trajectories of relational turbulence and affectionate communication upon reunion after deployment. Eight waves of data from 268 military couples revealed very low levels of relational turbulence overall, congruent with evidence that most returning service members and at-home partners cope effectively with the demands of reintegration (U.S. Department of Defense, 2019b; Werber et al., 2013). Relational turbulence at Wave 1 was concurrently associated with affectionate communication at homecoming, but the major findings of our study involved longitudinal change over time. Next, we consider the contributions of our project for theorizing about relational turbulence and understanding the dynamics of affectionate communication.

Implications of the results

A major shift in transforming the relational turbulence model into a theory involved centralizing relational turbulence as a pervasive force shaping people's communication over time (Solomon et al., 2016). Although relational turbulence theory accentuates the dynamic nature of its core construct (Solomon et al., 2019), the particular form of the trajectory of relational turbulence over time is likely to hinge on features of the transition itself. Reunion after deployment is a time when returning service members and at-home partners may experience an initial phase of idyllic closeness followed by mounting relationship stressors (Pincus et al., 2001; Sahlstein et al., 2009; see also Karakurt et al., 2013). Consistent with this logic, military couples in our sample reported escalating relational turbulence across eight waves (H_1). These findings are the first to map the trajectory of relational turbulence across the duration of a transition. They also lend initial support for a focal premise of the theory that people's sense of turbulence in relationships varies over time.

A second contribution involves documenting monthly changes in affectionate communication. Research on newlyweds has shown a yearly decline in spouses' reports of received affection (Huston et al., 2001; Niehuis et al., 2016) and a semiyearly increase in their reports of affection as problematic (Lavner et al., 2014), but we are not aware of any research charting people's verbal and nonverbal expressions of affection month by month. More frequent assessments are beneficial for illuminating the dynamic nature of interpersonal communication. Our findings showing a trajectory of diminishing affectionate

communication (H_2), coupled with a trajectory of escalating relational turbulence (H_1), suggest that military couples may experience reunion after deployment to be more costly and less rewarding as the transition unfolds. Given the resemblance of our results to those of the early years of marriage, perhaps theorizing about disillusionment across the transition to marriage also applies to the post-deployment transition. The *disillusionment model* proposes that newlyweds grow disenchanted when their idyllic view of their relationship falls short of reality and affection wanes over time (Caughlin et al., 2018; Huston et al., 2001). Our findings hint that a similar process may occur upon a service member's return home from deployment.

At the heart of relational turbulence theory is the claim that developmental changes in people's experience of relational turbulence during times of transition permeate all facets of communication with their partner (Knobloch & Theiss, 2018; Solomon et al., 2016, 2019). In the first longitudinal test of that claim, we examined the trajectory of relational turbulence as a predictor of affectionate communication over time. Findings were largely compatible with our logic linking escalating relational turbulence with deteriorating affectionate communication upon reunion after deployment. For returning service members and at-home partners experiencing relational turbulence during the transition, increases in relational turbulence over time corresponded with a steeper decline in both people's reports of affectionate communication (H_3), controlling for prior deployment experience, deployment length, romantic relationship length, combat exposure during deployment, relationship satisfaction at homecoming, and depressive symptoms at homecoming. Beyond supporting a central premise of relational turbulence theory, our results showcase the predictive utility of changes in relational turbulence over time (see also Knobloch & Theiss, 2010). Our data also advance the literature on affectionate communication by confirming the value of a relationship development perspective on people's verbal and nonverbal expressions of affection (see also McCracken, 2018). Whereas existing work has emphasized the physiological predictors and outcomes of affectionate communication (Floyd et al., 2018), our findings identify developmental changes in relationship dynamics over time as another potential foundation of affectionate communication.

Further theoretical advances could be made by integrating affection exchange theory (Floyd, 2006, 2019) with relational turbulence theory (Solomon et al., 2016). Affection exchange theory adopts an evolutionary perspective to characterize affectionate communication as essential to human survival and reproductive success. It proposes that people are born with the need and capacity for affection, derive physiological benefits from affectionate communication, and vary in their tolerance for affectionate behavior (Floyd, 2019). The two theories complement each other well: Whereas affection exchange theory spotlights the innate adaptive functions of affectionate communication (Floyd, 2006, 2019), relational turbulence theory highlights relationship parameters such as relational turbulence that may factor into verbal and nonverbal expressions of affection (Solomon et al., 2016). Synthesizing affection exchange theory with relational turbulence theory could provide an entry point for theorizing about how people's hard-wired motivations intersect with their social appraisals to shed light on important topics such as pair bonding, relationship maintenance, and physiological well-being during times of transition.

Limitations and directions for future research

Our study was limited by its convenience sampling strategy. Although we were able to attract and retain military couples from all branches of service, we were less successful in recruiting female returning

service members (2%), individuals of minority racial and ethnic backgrounds (20%), and participants age 25 or younger (19%). By way of comparison, recent statistics suggest that 18% of the U.S. military total force are women, 44% of active duty service members do not identify as non-Hispanic White, and 41% of the total force are age 25 or younger (U.S. Department of Defense, 2019a). Greater attention to heterogeneous groups is important because the meanings attached to affectionate communication may vary by gender, race, and age (e.g., Bernhold & Giles, 2018; Burleson et al., 2019; Dainton, 2017). Additional research is needed to examine whether our findings apply to a diverse array of military couples (e.g., National Academies, 2019; Sherman et al., 2015).

Our convenience sampling procedures also garnered a cohort of military couples who reported considerable efficacy navigating the transition from deployment to reintegration. On average, they reported high levels of relationship satisfaction and low levels of relational turbulence. Such resilience is consistent with prior longitudinal research on relational turbulence upon reunion (Knobloch, McAninch, et al., 2016) and nationwide data showing that most military families adjust well to the stress of the deployment cycle (e.g., Meadows et al., 2016). Notably, however, our claims are tentative in the absence of data from a less high-functioning sample (e.g., Tanielian et al., 2018). The truncated levels of relational turbulence also curtailed our ability to test our hypotheses using a full actor-partner model approach (see Kenny et al., 2006). Sampling procedures that produced more variation in relational turbulence would permit broader insight into how each person's sense of instability during the post-deployment transition corresponds with the other person's communication behavior.

Other limitations stem from our research design. First, our study is not equipped to establish causality in the associations between relational turbulence and affectionate communication. Second, our original procedures called for a wave of data collection during deployment, but that portion of the study was canceled when the U.S. Department of Defense issued regulations restricting human subjects research with deployed service members in theater. Responses gathered before and during deployment would have allowed us to identify the preexisting strengths and vulnerabilities that military couples possess before homecoming (e.g., Balderrama-Durbin et al., 2015) and disentangle whether the decline in affectionate communication reflects a general trend in marriage (e.g., Huston et al., 2001; Lavner et al., 2014; Niehuis et al., 2016) or is tied to deployment itself.

Looking to the future, we see value in large-scale research that evaluates heterogeneity in people's post-deployment experiences. Our results map single trajectories of relational turbulence and affectionate communication for returning service members and at-home partners (see Figure 1), which is appropriate for a first investigation tracking monthly changes upon reunion, but an important next step is to examine whether groups of military couples experience varying trajectories (e.g., Boasso et al., 2016). Such work would be valuable for moving beyond a one-size-fits-all understanding of transitions within interpersonal relationships (Caughlin et al., 2018).

We also advocate theory-driven research using a variety of methods to further illuminate the communication of military couples upon reunion. Qualitative methods building on a rich tradition of scholarship on family functioning across the deployment cycle (e.g., Freytes et al., 2017; Sahlstein et al., 2009) would leverage the power of thick description to shed light on people's experiences of relational turbulence (e.g., Monk et al., 2020) and affectionate communication (e.g., McCracken, 2018). Physiological methods capitalizing on an extensive legacy of research on the biology of affectionate communication (e.g., Floyd, 2019; Hesse et al., 2021) would elucidate the physical health implications of

verbal and nonverbal expressions of affection among reuniting military couples. Observational methods evaluating the micro features of conversation (e.g., Sillars & Vangelisti, 2018) would clarify how people's view of their relationship as turbulent is manifest in the back-and-forth interaction between returning service members and at-home partners. Theory-informed research combining these methods would make further progress toward the goal of helping military couples communicate effectively during the post-deployment transition.

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Notes

1 This paper is part of a series of reports from a larger project funded by the Congressionally Directed Medical Research Programs through the Military Operational Medicine Research Program (Award W81XWH-14-2-0131). Success in recruiting allowed us to more than double our original target sample size from 250 military couples to 555 military couples. We designed the project such that the full sample of 555 military couples provided data essential to the project aims, but the first half of the sample (*N* = 268 military couples) and the second half of the sample (*N* = 287 military couples) provided data for different secondary variables of interest.

Previous results from the project suggest that military couples acclimate to pragmatic changes in their living situation over time, but they also encounter relationship issues as the transition progresses. Regarding adjusting to new routines, data from the full sample (*N* = 555 military couples) documented a decline in people's symptoms of general anxiety (Knobloch, Knobloch-Fedders, et al., 2018) and their difficulty with reintegration (Knobloch et al., 2019) over time. Regarding relationship challenges, findings from the full sample showed that military couples report the most positive changes to their relationship early in the transition (Knobloch-Fedders et al., 2020), and data from the second half of the sample (*N* = 287 military couples) revealed an increase in people's relational uncertainty over time (Knobloch et al., 2021). Here, we draw on data from the first half of the sample (*N* = 268 military couples) to test hypotheses predicting an increase in relational turbulence and a decrease in affectionate communication over time. The overarching storyline of findings from the project, although complex, are theoretically

reasonable given both the pragmatic and relational components of the post-deployment transition (Bowling & Sherman, 2008; Pincus et al., 2001).

2 We report McDonald's (1999) omega (ω) as an estimate of reliability given its advantages over Cronbach's α (Goodboy & Martin, 2020).

3 We also conducted subsidiary analyses to examine the robustness of the link between relational turbulence and affectionate communication in the broader context of this program of research (see Note 1). In particular, we examined a series of two-part final conditional models covarying the other substantive variables from prior quantitative papers: (a) communication during deployment and symptoms of anxiety (from Knobloch, Knobloch-Fedders, et al., 2018) and (b) posttraumatic stress symptoms, reunion uncertainty, reintegration interference from a partner, and reintegration difficulty (from Knobloch et al., 2019). Results were virtually identical to those reported in Table 4 (contact the first author for details).

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