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Knowledge of suicide history, current depressive symptoms, and future suicide risk within couples

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ABSTRACT

Research on suicide prevention and intervention has overwhelmingly focused on the suicidal individual. However, suicidal individuals exist within interpersonal relationships. This study tests 1) how accurately members of romantic couples know each other's depression symptoms, suicide histories, and risk for future suicidal thoughts and behaviors and 2) whether couple-specific factors moderate those associations. Participants were 43 mixed-sex couples (N = 86 individuals) recruited for a larger study of National Guard or Reserves members and their partners. Participants reported on their own depression symptoms, suicide history and expectation of future suicide risk, as well as their perceptions of their partners' depression symptoms, suicide history and future suicide risk. Effects were tested for moderation by communication style and relationship satisfaction. Results suggest that many individuals knew about their partners' depression symptoms and past suicidal ideation (77%). In contrast, fewer were aware of their partners' future suicide ideation risk (44%) and the minority knew about past suicidal behavior (23%) or risk for future suicide attempt (14%). Associations were not moderated by positive or negative communication styles or relationship satisfaction. Taken together, these results suggest that while romantic partners share some parts of their suicide histories with each other, some aspects are kept private. Notably, regardless of communication style or relationship quality, results were consistent, suggesting that even couples in strong relationships may not be aware of each other's suicide history and risk. Implications for the development of couples-based suicide prevention interventions are discussed.

1. Introduction

In the United States each year, over 44,000 people die by suicide (CDC, 2018), approximately 1.3 million people make a non-fatal suicide attempt (Substance Abuse and Mental Health Services Administration, 2017), and countless others consider ending their lives. Suicide is a particularly difficult problem for members of the military overall. Rates of suicide have doubled over the past decade for both military personnel and veterans (Ramchand, Acosta, Burns, Jaycox, & Pernin, 2011). However, suicide risk is of particular concern within the National Guard component (May, Lawson, Bryan, & Bryan, 2018). Among National Guard members, suicide rates are higher than age and sex matched civilian samples, something that is not true of the Regular army (Department of Defense, 2016). Further, despite a rise in suicide prevention efforts, rates have not changed substantially over the past three years (DoD, 2016).

These suicidal crises touch not only those experiencing them first hand, but also the partners and family members of those individuals. While suicidal thoughts and behaviors occur at the level of the individual, suicidal individuals are embedded within interpersonal contexts. Consistent with this perspective, many theories of suicide explicitly incorporate relational and interpersonal factors. For example, Durkheim's early investigations of suicide were grounded in social influences (Durkheim, 1897), the interpersonal psychological theory of suicide (Joiner, 2007) highlights low belongingness and a belief that one is a burden on others as the primary drivers of suicidal desire, and the three-step theory (Klonsky & May 2015) emphasizes the role of connection in protecting against worsening suicidal ideation.

These theories suggest that supportive relationships may be associated with a decreased likelihood of suicidal thoughts and behaviors whereas distressed relationships may be associated with an increased likelihood. Research to date supports these associations. Individuals

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with higher relationship satisfaction are less likely to experience suicidal thoughts than individuals with low relationship satisfaction (Till, Tran, & Niederkrotenthaler, 2017; Whisman & Uebelacker, 2006). In addition, married individuals are less likely to die by suicide than unmarried individuals (Frey & Cerel, 2015; Griffith, 2012; Moscicki, 2014), although when there are problems in the marital relationship (e.g., a break-down in communication), these ruptures may function to increase risk. Indeed, relationship problems are common precursors to suicide attempts (Bryan & Rudd, 2012; Kazan, Calear, & Batterham, 2016) and are the most frequently-endorsed stressors during the 24 h immediately preceding suicide attempts (Bryan & Rudd, 2012). Those who experience *persistent* relationship problems are also more likely to have made multiple suicide attempts and to experience longer suicidal episodes (Bagge, Glenn, & Lee, 2013; Bryan, Clemans, Leeson, & Rudd, 2015).

In addition to the relationship itself influencing suicide risk, romantic partners are often the first or only members of a suicidal individual's network to know about the suicidal crisis. For example, among civilians, approximately half disclosed their history of suicidal thoughts or behaviors to a romantic partner (Frey, Hans, & Cerel, 2016a; 2016b). Among service members, spouses and friends were the two most common groups to whom suicidal thoughts were communicated prior to an attempt (National Center for Telehealth and Technology & Defense Suicide Prevention Office [T2 & DSPO], 2016). Psychological autopsy studies of suicide decedents further suggest that romantic partners are the most likely recipients of suicide communications prior to an individuals' death by suicide, more so than friends, other family members, or professionals (Martin et al., 2013; T2 & DSPO, 2016). Critically, however, many romantic partners report being unaware of their partners' suicidal thoughts. A Department of Defense report found that only 31% of suicide deaths and 23% of non-fatal suicide attempts were preceded by any interpersonal communication (T2 & DSPO, 2016). Additionally, in each of these studies, information was only collected from one member of the relationship dyad. Thus, although theory and data demonstrate that suicidal thoughts and behaviors are related to romantic relationships and when disclosure occurs, relationship partners are a prime target, many couples do not communicate about suicide risk. Further, little is known about the specific characteristics of romantic relationships that contribute to the presence or absence of such communication.

While theories describing the link between suicide risk and relationship functioning are limited, interpersonal theories of depression may be one perspective that provide insight into this association. For example, Coyne (1976) notes that individuals with depression have a strong need for interpersonal relationships. However, some of their behaviors may unintentionally threaten these relationships. Individuals experiencing depression often look to others for reassurance that they are worthy and accepted. Over time, excessive reassurance seeking can erode the frequency or quality of support provided (Joiner & Metalsky, 2001; Joiner, Metalsky, Katz, & Beach, 1999). If the depressed individual senses the decline in support, they may engage in negative behaviors such as blaming the partner, increased irritability or hostility, or manipulation (e.g., exaggerating symptoms). On the other hand, the partner of the individual may feel exploited and withdraw as a result, which strengthens the depressed individual's negative beliefs about themselves and their relationship. While not all individuals with depression experience suicidal thoughts and vice versa, interpersonal themes, such as burdensomeness, low belongingness, and worthlessness, are key aspects of suicidal thinking (Bryan, Clemans, & Hernandez, 2012; Van Orden, Cukrowicz, Witte, & Joiner, 2012; Van Orden et al., 2010). These themes may cause individuals in suicidal crisis and their partners to develop similar maladaptive communication patterns to couples experiencing depression. Thus, communication patterns may not only impact the experience of suicidal episodes, but may also influence communication about them within the dyad.

Other research exploring interpersonal perceptions of emotions within the relationship dyad also bears some relevance to understanding suicide risk within romantic couples. Individuals are generally accurate in estimating their partners' emotions. Yet, one's own experience of an emotion influences one's rating of one's partners emotions, such that partner A will tend to rate partner B as similar to themselves, regardless of whether or not they are actually similar (Clark, Von Culin, Clark-Polner, & Lemay, 2017; Wilhelm & Perrez, 2004). Further, when examining emotion more broadly (e.g., valence and arousal rather than specific emotional states), partners are relatively accurate at judging their partner's valence (i.e., positivity or negativity), though tend to overestimate their partner's arousal (i.e. intensity) (Sels, Ceulemans, & Kuppens, 2017). This work suggests that relationship partners have a reasonably good, though not entirely accurate, sense of their partners' emotional states; however this has not yet been examined with respect to depression symptoms and suicide risk.

Taken together, these findings suggest that while many suicidal individuals do not share their suicidal thoughts, those who do are most likely to disclose to a romantic partner. To date no studies have collected information from both members of the relationship dyad simultaneously, limiting the extent of our knowledge about dyadic processes that give rise to (or interfere with) disclosure to one's partner. For example, poor communication skills or low relationship satisfaction could make individuals less likely to disclose depressive or suicidal thoughts. It is clear that intimate partners play a critical role in both suicide risk and resilience and are often good detectors of each other's emotions, however, virtually nothing is known about communication of suicide history and risk within couples. Further, this gap in knowledge serves as a direct barrier to the successful design and implementation of partner-involved suicide prevention efforts. Understanding if and under what conditions suicide disclosures take place will help in the development of such treatments.

In this article we examine how well partners know each other's histories of suicidal thoughts and behaviors. Given the sensitive and stigmatized nature of suicide, a first step to developing partner-involved interventions is understanding the degree to which individuals are even aware of their partners' risk for suicide. We are particularly interested in testing 1) how accurately depression, suicide histories, and risk for suicide are communicated within couples and 2) whether couple-specific factors moderate those associations. The present study aimed to begin to address these gaps by testing how accurate partners were in detecting five suicide risk variables in the partners: current depressive symptoms, suicide ideation history, self-assessment of future suicide ideation risk, suicide behavior history, and self-assessment of future suicide attempt risk. Whether these associations were moderated by sex, communication style, or relationship satisfaction was then tested. In light of the absence of previous research, exploratory analyses were pursued.

2. Methods

2.1. Participants

Participants were 43 mixed-sex couples ($N = 86$ individuals) recruited for a larger study investigating suicide risk detection strategies among members of the National Guard or Reserve and their partners. Couples were eligible to participate if one or both members were serving in the Guard or Reserve Component, were married or cohabitating, were at least 18 years old, could speak fluent English and were proficient in reading written English, and had reliable internet access at home. They were not recruited based on any suicide-relevant variables. The majority of couples were married (93%) and the remaining couples were dating exclusively. All participants were cohabitating. Participants reported being in a relationship for 0.5–24 years ($M = 11.7$, $SD = 7.1$). Participants ranged from 22 to 57 years old with a mean age of 35 ($SD = 7.5$). Most participants self-identified as Caucasian (90%), with 2% African American, 2% multiple races, 1% Asian American, 1%

Hispanic/Latinx, and 3% declined to answer. Most participants had completed an Associates degree or more (78%) and were employed (76%). Of the 43 couples, in 70% only the male member was in the Reserve/Guard, in 21% both members of the couple were in the Reserve/Guard, and in 9% only the female member was in the Reserve/Guard. The mean length of service was 12.3 years (range = 0.3–35.7) and service members had deployed a mean of 1.4 times (range = 0–13).

2.2. Procedures

Participants completed the study, including procedures not contained herein, as part of a larger study investigating behavioral and cognitive markers of suicide risk. The parent study consisted of a 3.5-h laboratory visit and 2 h of study activities on their own, in their home. Participants were randomly assigned the order in which they would complete the at-home or in-laboratory tasks. All participants completed the Self Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michel, 2007) to assess their history of suicidal thoughts and behaviors via telephone prior to completing their in-laboratory or at-home tasks. Participants independently completed self-report questionnaires assessing their marital satisfaction, communication styles, and symptoms of depression as part of the in-laboratory visit. Participants completed the questionnaire regarding their partners' suicide history and symptoms of depression during their at-home visit. The in-laboratory and at-home procedures occurred approximately 1–2 weeks apart. The study was approved by the University of Utah Institutional Review Board and the Human Research Protection Office. All participants provided informed consents prior to participating. Due to the addition of some measures part way through study recruitment, sample size varies. Specifically, between 72 and 86 participants (36–43 dyads) completed items about their partners' suicide history and 58 (29 dyads) participants completed the measure of their partners' depressive symptoms. and 52 participants completed both measures.

2.3. Measures

2.3.1. Psychopathology variables

Suicidal thoughts and behaviors were assessed using the Self Injurious Thoughts and Behaviors Interview (SITBI; Nock et al., 2007). The SITBI assesses the occurrence, frequency, and characteristics of a wide range of self injurious thoughts and behaviors. Participants reported on their own suicide history via the interviewer administered version of the SITBI. Participants reported on their understanding of their partners' suicide history via a lightly edited version of the self-report version of the SITBI that used pronouns that matched the partners' sex (e.g., he/him for male partners and she/her for female partners). For example, to assess suicide ideation, the item worded "Have you ever had thoughts of killing yourself?" was changed to "To your knowledge, has your partner ever had thoughts of killing himself?" in the male partner version. Item wording for each construct is listed in Table 1. Suicidal behavior was coded with a composite variable that combined three items that independently assessed history of completed suicide attempts, interrupted suicide attempts, and aborted suicide attempts. Examples of behaviors that fit under the categories of aborted and interrupted attempts were added to the item wording for the partner-version, as the measure was self-report rather than interviewer-conducted. Self and partner likelihood of future suicide ideation and future suicide attempt were each assessed with independent items rated on a 0 to 4 scale. All future risk items were dichotomized at 0 versus 1 or greater due to limited use of the scale.

Current depression symptom severity was measured using the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996). Participants completed the BDI-II, reporting on their own current depression symptoms and completed a lightly edited version of the BDI-II, reporting on their perception of their partner's current depression symptoms. For example, for Item 1 (Sadness) the wording of the first response option was changed from "I do not feel sad" to "He does not feel sad." Items were summed to create a depression symptom severity score. For both self-reported BDI-II (α = .92) and partner-reported BDI-II (α = .92) the coefficient alphas were excellent.

2.3.2. Relationship functioning variables

Relationship satisfaction was assessed using the total score on the Couples Satisfaction Index, 32-item version (CSI; Funk & Rogge, 2007), where higher scores indicate greater relationship satisfaction. The CSI includes items such as "I have a warm and comfortable relationship with my partner," rated on a 6-point scale from "not at all true" to "completely true." For both men (α = .97) and women (α = .96) the coefficient alphas of the CSI were excellent. A dyad-level satisfaction score was calculated by averaging both partners' scores (inter-partner α = .86).

Couple communication behavior was assessed using the Communications Patterns Questionnaire (CPQ; Christensen, 1987, pp. 250–265). This self-report measure is well-validated in assessing both destructive and constructive communication patterns. Recently revised scoring recommendations (Crenshaw, Christensen, Baucom, Epstein, & Baucom, 2017) were used to calculate a positive communication scale and a negative communication scale. The positive communication scale included items such as "During a discussion of a relationship problem both my partner and I express our feeling to each other". The negative communication scale included items such as "When some problem in my relationship arises I try to start a discussion while my partner tries to avoid it." Items were rated on a 9-point scale from "very unlikely" to "very likely." For both men (α = .91) and women (α = .89) the coefficient alphas of the positive communication scale were good. For both men (α = .90) and women (α = .84) the coefficient alphas of the negative communication scale were also good. Dyad-level scores for each were calculated by averaging both partners scores (Positive communication: inter-partner α = .65; Negative communication: α = .69).

2.4. Analytic plan

2.4.1. Accuracy in detecting depression

Accuracy in predicting depression symptoms was tested using the Truth and Bias Model (T&B; West & Kenny, 2011). The T&B model was used to account for assumed similarity, a phenomenon in which people tend to assume others are like them and therefore tend to rate others like they would rate themselves (Cronbach, 1955), by using a modified version of the Actor Partner Interdependence Model (Kenny, Kashy, & Cook, 2006). In the T&B model, a person's judgment about their partner is regressed onto both their own rating of themselves (assumed similarity or "bias") and the partner's rating of themselves ("truth") as described by the following equations, presented in series of equation format:

$$\text{Level 1: (Partner A's rating of Partner B's depression)}_{ij} = \beta_{0j} + \beta_{1j}*(\text{SEX}_{ij}) + \beta_{2j}*(\text{Partner B's ratings of Partner B's depression}_{ij}) + \beta_{3j}*(\text{Partner A's rating of Partner A's depression}_{ij}) + \beta_{4j}*(\text{Sex*Partner B's ratings of Partner B's depression}_{ij}) + \beta_{5j}*(\text{Sex*Partner A's rating of Partner A's depression}_{ij}) + r_{ij}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \mu_{0j}$$

$$\text{for } i = 1 \text{ to } 5, \beta_{ij} = \gamma_{i0}$$

where i represents partners within a couple and j represents couples. Sex was effect-coded (male = −0.5; female = .5). The outcome and partner rating predictors (i.e., each partner's rating of him- or herself) were centered at the group mean of truth for each sex (i.e., wife's rating of wife when the outcome in the model is husband's rating of wife and husband's rating of husband when the outcome is wife's rating of husband) (West & Kenny, 2011). Using this procedure, β_{2j} and β_{4j} represent accuracy in identifying depressive symptoms (also known as "tracking

Table 1
Question wording for each construct.

Construct	Self item	Partner item
Suicide ideation (history)	Have you ever had thoughts of killing yourself?	To your knowledge, has your partner ever had thoughts of killing himself?
Suicide ideation (risk)[a]	On a scale of 0–4, what do you think the likelihood is that you will have thoughts of killing yourself in the future?	On a scale of 0–4, what do you think the likelihood is that your partner will have thoughts of killing himself in the future?
Aborted suicide attempt (history)[b]	Have you ever been close to killing yourself and at the last minute decide not to kill yourself?	Has your partner ever been close to killing himself and at the last minute decided not to act on those thoughts? For example – was holding the pills in his hand, but decided not to take them; tied a rope, but did not go further.
Interrupted suicide attempt (history)[b]	Have you ever been very close to killing yourself and at the last minute someone or something else stopped you?	Has your partner ever been close to killing himself and at the last minute someone or something else stopped him before he acted on those thoughts? For example – someone walked into the room, interrupting him.
Completed suicide attempt (history)[b]	Have you ever made an actual attempt to kill yourself in which you had at least some intent to die?	Has your partner ever made an actual attempt to kill himself in which he had at least some intent to die?
Suicide attempt (risk)[a]	On a scale of 0–4, what do you think the likelihood is that you will make a suicide attempt in the future?	On a scale of 0–4, what do you think the likelihood is that your partner will make a suicide attempt in the future?

[a] Participants were provided with the following anchors 0 (low/little) to 4 (very much/severe). In the present analyses, these variables were dichotomized to 0 or 1 or greater.
[b] Results from these items were combined to create a "suicide behavior" variable.

accuracy"; West & Kenny, 2011), β_{3j} and β_{5j} represent assumed similarity, and β_{0j} represents overall directional bias such that positive values indicate that individuals generally rated their partners higher than the partners rated themselves (which is independent of tracking accuracy; e.g., Fletcher & Kerr, 2010). Finally, to test the effect of other variables (e.g., communication), those variables are added the model as both main effects and as interactions with partner ratings. In total, three predictors of accuracy were separately tested: positive communication, negative communication, and relationship satisfaction.[1] All models were estimated in Stata 15 (StataCorp, 2017).

2.4.2. Accuracy in detecting suicidal ideation and behavior

Regarding suicidal ideation and behavior, we tested partners' accuracy in detecting four types of information: suicidal ideation history (SI history), estimated future risk for suicidal ideation (SI risk), suicidal behavior history (SB history), and estimated future risk for suicidal behavior (SB risk). Sample size was insufficient to separately estimate effects of truth and bias for these dichotomous outcomes so accuracy for these domains (SI history, SI risk, SB risk, or SB risk) was tested using 2 (partner) x 2 (sex) repeated-measures ANOVAs,[2] where sex is the repeated measure to account for the nested data structure and main effects and interactions of other variables (e.g., communication) were included as covariates. All models were estimated in Stata 15 (StataCorp, 2017). Given different sample sizes for various constructs, specific power for tests varied. In sum, we were powered to detect effect sizes that were medium-large to large and therefore cannot rule out smaller associations.

3. Results

3.1. Descriptive statistics

Table 2 presents descriptive statistics for and correlations between study variables. Table 3 presents concordance information for each of the four suicide-related variables. Based on self-reported suicide history, in 37% of couples neither member had a history of suicidal thoughts or behaviors, in 33% of couples, one member had a history of suicidal thoughts or behaviors, and in 30% of couples both members had a history of suicidal thoughts or behaviors. Thirty nine percent of couples were fully accurate in reporting each other's suicide history and risk, however these were predominantly couples (82%) in which neither member reported any suicide-related history or risk. The majority of participants (79%) who reported their partner had a history of suicidal thoughts or behaviors also reported that they were in a relationship during the time of most recent crisis.

3.2. Accuracy in detecting depression

Men and women accurately estimated their partner's current depressive symptoms (β_2 = .55, 95% confidence interval [CI] = [.34, .77], $p < .001$) and assumed their partners were like themselves (β_3 = .36, 95% CI = [.13, .59], p = .003).[3] There were no significant differences in the magnitude of these associations across sex (p = .094 and p = .324, respectively). In contrast, women significantly underestimated their male partners' level of depressive symptoms relative to what their male partners reported ($\beta_0 = -1.85$, χ^2 [1] = 6.16, p = .013), whereas men neither over- nor underestimated their female partners' level of depressive symptoms ($\beta_0 = 1.09$, χ^2 [1] = 1.49, p = .223).

When negative communication, positive communication, and relationship satisfaction were separately entered as interactions and main effects to the previous model, none of the main effects or interactions emerged as significant (negative communication: interaction $B = -.01$, p = .593; main effect $B = -0.07$, p = .449; positive communication: interaction $B = -0.003$, p = .797; main effect $B = -0.06$, p = .414; relationship satisfaction: interaction $B = -0.06$, p = .621; main effect $B = -0.13$, p = .887).

Collectively, these results indicate that both men and women were accurate in identifying their partners' depressive symptoms. However, women also showed a directional bias such that they also tended to underestimate their male partners' depressive symptoms overall, whereas men showed no such directional bias. Additionally, none of these effects significantly varied according to relationship satisfaction or the degree of negative or positive communication during conflict.

[1] Relationship satisfaction was heavily skewed positively, so this variable was transformed by reflecting the distribution, computing the natural log, and reflecting again so rank ordering remains the same.

[2] ANOVAs are reported in contrast to multilevel logistic regression for several reasons. First, odds ratios in logistic regression were unrealistically large, and some confidence intervals were impossibly large, indicating separation. Second, several interaction models would not converge. Third, ANOVA is robust to violations of normality, and ANOVA results are simpler to interpret. However, to test stability of results, models were also run using multilevel logistic regression. In all cases, when models converged, results from multilevel logistic regression were the same as from ANOVA in direction and significance.

[3] Regression diagnostics identified one outlier for depression judgment (BDI = 31) and one for self-reported depression (BDI = 40). These values were windsorized prior to analyses by equating them to the next highest values (23 and 21, respectively). One additional couple with an extreme residual could not be windsorized and was therefore dropped from BDI analyses.

Table 2
Descriptive statistics for and correlations between study variables.

	% or *M* (SD)	BDI (self)	BDI (partner)	Positive Commun.	Negative Commun.	Relationship Satisfaction
Suicide ideation history (self)	45.5%	.40**	.24	-.05	.18	-.14
Suicidal behavior history (self)	15.1%	.40**	.17	.07	.01	-.03
Suicide ideation risk (self)	34.7%	.30*	.27	-.06	.13	-.16
Suicide attempt risk (self)	9.7%	.19	.24	-.24*	.10	-.22
Suicide ideation history (partner)	36.4%	.25	.36*	-.05	.13	-.15
Suicidal behavior history (partner)	4.7%	.02	.10	.03	.02	-.05
Suicide ideation risk (partner)	26.4%	-.05	.32*	-.15	.12	-.18
Suicide attempt risk (partner)	15.3%	.03	.29*	-.21	.16	-.20
BDI (self)[a]	7.2 (7.2)	–	.34**	-.23*	.30**	-.50**
BDI (partner)[a]	7.1 (7.4)		–	-.25	.20	-.36***
Positive Communication[b]	62.2 (10.4)			–	-.67***	.50***
Negative Communication[c]	18.4 (7.3)				–	-.47***
Relationship Satisfaction[d]	140.6 (17.1)					–

Note: Factors identified as self refer Partner A's report of Partner A, factors identified as partner refer to Partner A's report of Partner B. For dichotomous criterion variables point-biserial correlations (r_{pb}) are reported. All communication and satisfaction correlations are calculated using the couple's average scores. The transformed version of relationship satisfaction is presented. BDI = Beck Depression Inventory.
*$p < .05$. **$p < .01$. ***$p < .001$.
[a] Range: 0–63.
[b] Range: 9-81.
[c] Range: 7–63
[d] Range: 0–161.

Table 3
Self-report and partner inference of suicide-related variables.

Suicidal Ideation

History		*Partner Inference*		Future Risk		*Partner Inference*	
		No	Yes			No	Yes
Truth	No	41	1	*Truth*	No	39	8
	Yes	8	27		Yes	14	11

Suicidal Behavior

History		*Partner Inference*		Future Risk		*Partner Inference*	
		No	Yes			No	Yes
Truth	No	72	1	*Truth*	No	55	10
	Yes	10	3		Yes	6	1

3.3. Accuracy in detecting suicidal ideation and behavior

Results of ANOVAs revealed significant effects for partner report for SI history ($F[1,74] = 110.27, p < .001$), future SI risk ($F[1,69] = 7.33$, $p = .009$), and SB history ($F[1,83] = 15.32$, $p < .001$). In each instance, partner A's report that partner B had a positive history of or future risk for SI or SB was associated with a significantly greater likelihood that partner B reported that he or she had a positive history of or future risk for SI or SB. The one exception to this general pattern was that partners were not significantly better than chance at identifying each other's self-reported future SB risk ($F[1,69] = .02, p = .877$). Descriptively, a majority of participants knew about their partner's positive SI history (77%; 27/35). However, despite significant associations between judgment and truth, a minority knew about their partner's future SI risk (44%; 11/25) and past suicidal behavior (23%; 3/13). Finally, only one participant knew of his or her partner's future SB risk (14%; 1/7).

Interactions involving sex emerged as non-significant in all models (*ps* = .640, .228, .089, .729, respectively). Likewise, main effects for sex were non-significant in three of four models (SI history: $F[1,73] = 1.49, p = .226$; future SI risk: $F[1,68] = 1.03, p = .314$; future SB risk $F[1,68] = .12$, $p = .728$). However, accuracy for SB history varied significantly by sex ($F[1,82] = 9.08$, $p = .003$). Post hoc contrasts found that women were accurate at detecting their partner's SB history ($F[1,82] = 23.38$, $p < .001$), whereas men were not ($F[1,82] = 2.52$, $p = .117$). Finally, none of the main effects or interactions involving negative communication, positive communication, and relationship satisfaction emerged as significant (*ps* > .125).

Collectively, these results indicate that partners were able to identify each other's SI history at greater than chance levels, and a majority of participants (77%) did so. Partners were also better than chance at identifying future SI risk, although a majority (56%) of participants still did not know about future SI risk when it was present. Accuracy of SB history was moderated by sex, where women were better than chance at identifying their partner's past SB history, and half did so (50%). However, men were not better than chance at identifying SB history, and most did not do so (89%). Partners were not able to identify each other's future risk for suicidal behavior at greater than chance levels, and a majority (86%) of participants were unaware of future SB risk when it was present. Finally, neither negative communication, positive communication, nor relationship satisfaction were related to accuracy.

4. Discussion

4.1. General discussion

Given the important role of interpersonal relationships in suicide risk and resilience, this project examined dyadic knowledge of depression, suicide history, and future suicide risk within couples. Results suggest that partners knew about each other's depression symptoms and were generally aware of each other's histories of suicidal thinking. However, they were less aware of each other's histories of suicidal behavior and in less agreement about perceived risk for future suicidal thoughts and behaviors. Moreover, these associations did not vary across levels of positive or negative communication styles or relationship satisfaction.

Depression symptoms were generally well identified within couples. These results are consistent with those of the more general emotion literature which find that individuals typically have an accurate assessment of their partners' emotional states (Sels et al., 2017). However, some sex differences did emerge. Though women and men were both accurate in detecting their partners' depressive symptoms, women overall tended to underestimate their male partner's depression severity. Research suggests that men report slightly different symptoms of

depression than women (and then classically identified depression symptoms) perhaps contributing to the underestimation of depression severity by their partners (Cavanagh, Wilson, Kavanagh, & Caputi, 2017).

Given the stigma surrounding suicide, it is notable that partners were generally aware of each other's histories of suicidal thoughts. These results align with findings that many patients in treatment for serious mental illness disclose their suicide ideation to someone in their network, most commonly a friend, romantic partner or mental health provider (Frey et al., 2016a). The absence of sex differences is also consistent with a large study that found men and women were equally likely to disclose recent suicidal thoughts (Mérelle et al., 2018). The high degree of knowledge about suicide ideation within the dyad is promising in that it suggests that many couples are already communicating about aspects of their suicide histories, opening the door for suicide prevention interventions that include both members of the dyad.

In contrast, past suicidal behavior was less likely to be known by partners. While in some ways counterintuitive, as behavior is typically more observable than thoughts, these results are potentially explained by some specific qualities of suicidal behavior. First, even within an individual who experiences suicidal thoughts suicidal behaviors are rare and infrequent. Thus, an individual may experience suicidal thoughts off and on across decades and only engage in suicidal behavior once. Further, suicidal behavior is most likely to occur within the first year that suicidal thoughts develop and suicidal thoughts typically begin during the teenage years (Borges et al., 2012). Thus, due both to frequency and timing, it is likely that a romantic partner may not be present for an instance of suicidal *behavior*, while he or she would be for an episode of suicidal *thoughts*. Second, acting on suicidal thoughts is likely more stigmatized than having suicidal thoughts, thus individuals may not be equally likely to reveal both experiences. Finally, for the present analyses multiple suicidal behaviors (i.e., complete, aborted, and interrupted attempts) were combined. While there is increasing interest in identifying where on the suicidal spectrum these experiences belong (Burke, Hamilton, Ammerman, Stange, & Alloy, 2016) there is currently no consensus. It is possible that each of these suicidal behaviors would be discussed with or detected by partners at differing rates. Additionally, men were less aware than women of their partners' past suicidal behavior, though the small sample size of men with past suicidal behavior precludes further interpretation of this result without replication. Overall, results suggest that while knowledge of suicidal thoughts is relatively common among partners, knowledge of suicidal behavior is much less so.

Similarly, partners were generally inaccurate in their assessment of future suicide risk, particularly a future suicide attempt – of the seven people who self-identified as being at risk of a future attempt, only one had a partner who indicated they perceived their partner was at risk. Interestingly, the discordance went in both directions, as there were 10 partners who identified future suicide attempt risk that the index participant denied. On the one hand this may indicate that partners are more sensitive to risk that index participants are not aware of or do not self-report. On the other hand, this may reveal that some partners have a limited understanding of their spouses' relationship to suicide, and perhaps future risk is in fact less than they fear. Misunderstandings in both directions may lead to less than optimal responses to suicidal and other crises that may arise in the future (e.g., both over and under reaction).

Given the limited power to detect interactions, caution must be taken in interpreting null results, however, no evidence was observed that our proposed moderators - positive communication, negative communication, and relationship satisfaction - were associated with the accuracy of knowledge about partners depression or suicidal thoughts or behaviors. The fact that relationship quality and communication do not appear to moderate accuracy suggests that one cannot assume that couples in seemingly good relationships have accurate knowledge of their partners' history and risk. Even in relationships with strong communication and high satisfaction, stigma around suicidality may inhibit open communication – as one participant wrote in response to an open-ended question about barriers to communication "We can talk about anything! But suicide is such a taboo topic, it feels awkward to discuss."

4.2. Clinical implications

The fact that partners are aware of each other's suicidal histories is promising. It suggests that individuals who experience suicidal crises are sharing at least some of their experiences within their relationship and allows for the possibility of harnessing the unique role of the partner to help bolster suicide prevention efforts. However, the fact that these disclosures occurred does not necessarily mean they were received in a positive way. There is no reason to believe that partners of individuals with suicidal thoughts and behaviors have any better understanding of suicide risk and prevention than the general public. Research shows that myths about suicide, such as the belief that asking about suicide can make someone suicidal, are still common (Hjelmeland & Knizek, 2004). In fact, of those who disclose their suicide history to a romantic partner, approximately 40% experience stigma in response (Frey et al., 2016a). Partners likely want to respond supportively, but simply may not know how to do so. A theme in qualitative interviews with family members of individuals who have experienced suicidal crises was a desire for education about suicide risk and specific information about what they can do to help (Castelli Dransart & Guerry, 2017). Family members desire to be involved in their loved ones' crisis and often feel excluded, either due to confidentiality or physicians' limited time (McLaughlin, McGowan, Kernohan, & O'Neill, 2016). Thus efforts are needed to improve the experience of sharing and learning about suicide risk for both members of the dyad.

In addition to knowing of their partners' suicide history and responding more compassionately, romantic partners are in a unique position to observe warning signs of impending suicidal crises and to aid in immediate intervention. Partners have numerous advantages in identifying acute risk, particularly the opportunity to observe changes across time and situations. Individuals experiencing suicide ideation are at variable risk (Kleiman et al., 2017). Weekly or monthly visits with a mental health professional are likely insufficient to observe fluctuation in suicidal desire. Thus, partners may serve as a "safety net", providing much more frequent monitoring of warning signs. Furthermore, given that a minority of individuals experiencing suicidal thoughts enter or stay in mental health treatment (Han, Compton, Gfroerer, & McKeon, 2014; Kessler, Berglund, Nock, Wang, & Page, 2005), a partner armed with knowledge of personalized warning signs to detect escalating crises and empirically supported tools to aid in deescalating these crises may be beneficial.

Finally, this parallels other health interventions that have found success teaching family members and friends how to identify and intervene in medical crises such as stroke (Wall, Beagan, O'Neill, Foell, & Boddie-Willis, 2008). Further, couple based interventions are becoming more common as a treatment for individual psychopathology (e.g., psychosis, anxiety, and PTSD) (Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998; Monson et al., 2012; Mueser, Deavers, Penn, & Cassisi, 2013; Pilling et al., 2002). For example, Monson et al. (2012) recently created Cognitive Behavioral Conjoint Therapy for PTSD. In this treatment, partners both learn to challenge negative thoughts using cognitive behavioral techniques, and the partner with PTSD focuses specifically on their trauma-related thoughts, with the partner sometimes helping to restructure these thoughts. This treatment has proven effective in reducing symptoms of PTSD and improving relationship functioning (Monson et al., 2012). Given the similar sensitivity and stigma between trauma and suicide-related content, it is possible that existing treatments for suicide, such as Brief Cognitive Behavioral

Therapy (BCBT; Rudd et al., 2015) could be similarly adapted to a couples modality and be found acceptable. Including the partner in BCBT could allow the couple to explore the patient's suicide history together, foster improved communication, that allow the partners to work as a team in implementing skills learned in therapy and even help provide the non-index partner with exposure to coping skills and additional support. Outside of couples-based intervention, peer support programs might provide another possible model for including a trusted other in the suicide prevention process.

4.3. Limitations and future directions

There are a number of limitations to note when interpreting these results. First, an individual's self report of his or her ideation and suicidal behavior was taken as "truth" and his or her partner's knowledge was judged against it. It is possible that the partner may have reported ideation or behavior that did occur, but that the index participant chose not disclose. This is particularly noteworthy in the assessment of future risk of suicidal behavior where almost two thirds of the discrepant responses were such that the partner reported future risk, where the individual denied it. The meaning of discordant reports in which an individual denies suicide history or future risk, and his or her partner reports it may be an important area for future study.

Second, individual-level variables were not examined as moderators, for example the degree to which each member of the couple perceived him or herself to be a burden. Indeed, others have found a small negative relationship between feeling like a burden and feeling disconnected with the degree of disclosure (Frey & Fulginiti, 2017), as well as a noting that the response to a disclosure may impact subsequent feelings of burdensomeness (Frey, Hans, & Cerel, 2017). Further, demographic factors, such as racial identity, may influence disclosure (Fulginiti, Pahwa, Frey, Rice, & Brekke, 2016). There are likely other important individual-level factors that moderate disclosure that were beyond the scope of this study but will be important to examine in future work.

Third, participants' own history was assessed via interview while their understanding of their partners' history was assessed via questionnaire. Thus, methods difference may account for some of the discrepancy between partner reports. Notably however, suicidal behaviors were more frequently reported on the interviewer-assessed measure (own history) than on the self-report measure (partner history), counter to the pattern expected by this methods difference. A typical concern is that research subjects include behavior, such as nonsuicidal self injury, in suicidal behavior items, resulting in over-report suicidal behaviors when assessed by self-report. While this does not appear to be the case in this data set, follow up studies should be designed that eliminate this method difference to fully address this confound.

Fourth, couples were recruited for a larger study of members of the National Guard and Reserve. These couples may experience unique stressors to relationships, such as trainings and deployments, that create frequent and at times extended separation which may influence communication about and awareness of suicidal thoughts and behaviors. Though not by design, all participants were part of mixed-sex couples. Participants were predominantly Caucasian and non-Hispanic/Latinx. Thus, these results may not generalize to other populations, such as those not involved with the Guard or Reserve components, those in same-sex relationships and those of different racial and ethnic backgrounds.

Fifth, the sample size, particularly among those with suicidal behavior, was small, limiting our power to detect small effects. However, this work represents the first investigation of suicide communication within both members of a dyad and provides initial information as to how communication about depression symptoms, suicide ideation, and suicidal behavior may differ. Replication in larger samples with greater frequency of suicidal behavior is needed.

4.4. Summary

Despite these limitations, this study finds that relationship partners are generally aware of each other's suicide ideation histories and current depressive symptoms, but are less aware of suicidal behavior and disagree with their partners in their assessment of the risk for suicidality in the future. Importantly, the absence of moderating effects of relationship quality and communication suggests that even couples in strong relationships may not be aware of each other's suicide history and risk. Taken together, these results suggest that a suicide prevention intervention that explicitly involves the relationship partner may benefit some couples. Many couples are already openly communicating about suicidal thinking, but not about suicidal behavior or the likelihood of future risk. Thus, a joint intervention could capitalize on the communication already occurring and leverage the unique role of the partner in the suicidal process to potentially decrease suicide risk.

References

Bagge, C. L., Glenn, C. R., & Lee, H.-J. (2013). Quantifying the impact of recent negative life events on suicide attempts. *Journal of Abnormal Psychology, 122*(2), 359–368. https://doi.org/10.1037/a0030371.

Baucom, D. H., Shoham, V., Mueser, K. T., Daiuto, A. D., & Stickle, T. R. (1998). Empirically supported couple and family interventions for marital distress and adult mental health problems. *Journal of Consulting and Clinical Psychology, 66*(1), 53–88. 66(February 2016) https://doi.org/10.1037//0022-006X.66.1.53.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck depression inventory-II.* San Antonio, TX: Psychological Corporation.

Borges, G., Chiu, W. T., Hwang, I., Panchal, B., Ono, Y., Sampson, N. A., et al. (2012). Prevalence, onset, and transitions among suicidal behaviors. In M. K. Nock, G. Borges, & Y. Ono (Eds.). *Suicide: Global perspectives from the WHO world mental health surveys* (pp. 65–74). New York, NY: Cambridge University Press.

Bryan, C. J., Clemans, T. A., & Hernandez, A. M. (2012). Perceived burdensomeness, fearlessness of death, and suicidality among deployed military personnel. *Personality and Individual Differences, 52*(3), 374–379. https://doi.org/10.1016/j.paid.2011.10.045.

Bryan, C. J., Clemans, T. A., Leeson, B., & Rudd, M. D. (2015). Acute vs. chronic stressors, multiple suicide attempts, and persistent suicide ideation in us soldiers. *The Journal of Nervous and Mental Disease, 203*(1), 48–53. https://doi.org/10.1097/NMD.0000000000000236.

Bryan, C. J., & Rudd, M. D. (2012). Life stressors, emotional distress, and trauma-related thoughts occurring in the 24 h preceding active duty U.S. Soldiers' suicide attempts. *Journal of Psychiatric Research, 46*(7), 843–848. https://doi.org/10.1016/j.jpsychires.2012.03.012.

Burke, T. A., Hamilton, J. L., Ammerman, B. A., Stange, J. P., & Alloy, L. B. (2016). Suicide risk characteristics among aborted, interrupted, and actual suicide attempters. *Psychiatry Research, 242*, 357–364. https://doi.org/10.1016/j.psychres.2016.05.051.

Castelli Dransart, D., & Guerry, S. (2017). Help-seeking in suicidal situations: Paramount and yet challenging. Interactions between significant others of suicidal persons and health care providers. *Journal of Clinical Medicine, 6*(12), 17. https://doi.org/10.3390/jcm6020017.

Cavanagh, A., Wilson, C. J., Kavanagh, D. J., & Caputi, P. (2017). Differences in the expression of symptoms in men versus women with depression: a systematic review and meta-analysis. *Harvard Review of Psychiatry, 25*(1), 29–38. https://doi.org/10.1097/HRP.0000000000000128.

CDC. (2018). *Web-based injury statistics query and reporting system (WISQARS).* Retrieved June 5, 2018, from https://www.cdc.gov/injury/wisqars/index.html.

Christensen, A. (1987). *Detection of conflict patterns in couples. Understanding major mental disorder: The contribution of family interaction research.* New York, NY: Family Process Press.

Clark, M. S., Von Culin, K. R., Clark-Polner, E., & Lemay, E. P. (2017). Accuracy and projection in perceptions of partners' recent emotional experiences: Both minds matter. *Emotion, 17*(2), 196–207. https://doi.org/10.1037/emo0000173.

Coyne, J. C. (1976). No toward an interactional description of depression. *Psychiatry, 39*, 28–40.

Crenshaw, A. O., Christensen, A., Baucom, D. H., Epstein, N. B., & Baucom, B. R. W. (2017). Revised scoring and improved reliability for the communication patterns questionnaire. *Psychological Assessment, 29*(7), 913–925. https://doi.org/10.1037/pas0000385.

Cronbach, L. (1955). Processes affecting scores on "understanding of others" and "assumed similarity. *Psychological Bulletin, 52*, 177–193.

Department of Defense (2016). *2015 Department of Defense suicide event report (DoDSER).*

Durkheim, E. (1897). *Le Suicide: Etude de socologie.* Paris: F. Alcan.

Fletcher, G. J. O., & Kerr, P. S. G. (2010). Through the eyes of love: Reality and illusion in intimate relationships. *Psychological Bulletin, 136*(4), 627–658. https://doi.org/10.1037/a0019792.

Frey, L. M., & Cerel, J. (2015). Risk for suicide and the role of family: A narrative Review. *Journal of Family Issues, 36*(6), 716–736. https://doi.org/10.1177/0192513X13515885.

Frey, L. M., & Fulginiti, A. (2017). Talking about suicide may not be enough: Family reaction as a mediator between disclosure and interpersonal needs. *Journal of Mental Health, 26*(4), 366–372. https://doi.org/10.1080/09638237.2017.1340592.

Frey, L. M., Hans, J. D., & Cerel, J. (2016a). Perceptions of suicide stigma: How do social networks and treatment providers compare? *Crisis, 37*(2), 95–103. https://doi.org/10.1027/0227-5910/a000358.

Frey, L. M., Hans, J. D., & Cerel, J. (2016b). Suicide disclosure in suicide attempt survivors: Does family reaction moderate or mediate disclosure's effect on depression? *Suicide and Life-Threatening Behavior, 46*(1), 96–105. https://doi.org/10.1111/sltb.12175.

Frey, L. M., Hans, J. D., & Cerel, J. (2017). An interpretive phenomenological inquiry of family and friend reactions to suicide disclosure. *Journal of Marital and Family Therapy, 43*(1), 159–172. https://doi.org/10.1111/jmft.12180.

Fulginiti, A., Pahwa, R., Frey, L. M., Rice, E., & Brekke, J. S. (2016). What factors influence the decision to share suicidal thoughts? A multilevel social network analysis of disclosure among individuals with serious mental illness. *Suicide and Life-Threatening Behavior, 46*(4), 398–412. https://doi.org/10.1111/sltb.12224.

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. https://doi.org/10.1037/0893-3200.21.4.572.

Griffith, J. (2012). Correlates of suicide among army national guard soldiers. *Military Psychology, 24*(6), 568–591. https://doi.org/10.1080/08995605.2012.736324.

Han, B., Compton, W. M., Gfroerer, J., & McKeon, R. (2014). Mental health treatment patterns among adults with recent suicide attempts in the United States. *American Journal of Public Health, 104*(12), 2359–2368. https://doi.org/10.2105/AJPH.2014.302163.

Hjelmeland, H., & Knizek, B. L. (2004). The general public's views on suicide and suicide prevention, and their perception of participating in a study on attitudes towards suicide. *Archives of Suicide Research, 8*(4), 345–359. https://doi.org/10.1080/13811110490476725.

Joiner, T. E. (2007). *Why people die by suicide.* Harvard University Press.

Joiner, T. E., & Metalsky, G. I. (2001). Excessive reassuarance seeking: Delineating a risk factor involved in the development of depressive symptoms. *Psychological Science, 12*(5), 371–378. https://doi.org/10.1111/1467-9280.00369.

Joiner, T. E., Metalsky, G. I., Katz, J., & Beach, S. R. H. (1999). Depression and excessive reassurance-seeking. *Psychological Inquiry, 10*(3), 269–278.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *The analysis of dyadic data.* New York: Guilford.

Kessler, R. C., Berglund, P., Nock, M., Wang, P. S., & Page, P. (2005). 1990-1992 To 2001-2003. *JAMA Psychiatry, 293*(20), 1990–1992.

Kleiman, E. M., Turner, B. J., Fedor, S., Beale, E. E., Huffman, J. C., & Nock, M. K. (2017). Examination of real-time fluctuations in suicidal ideation and its risk factors: Results from two ecological momentary assessment studies. *Journal of Abnormal Psychology, 126*(6), 726–738. https://doi.org/10.1037/abn0000273.

Klonsky, E. D., & May, A. M. (2015). The three-step theory (3ST): A new theory of suicide rooted in the "ideation-to-action" framework. *International Journal of Cognitive Therapy, 8*(2), 114–129. https://doi.org/10.1521/ijct.2015.8.2.114.

Martin, J. S., Ghahramanlou-Holloway, M., Englert, D. R., Bakalar, J. L., Olsen, C., Nademin, E. M., et al. (2013). Marital status, life stressor precipitants, and communications of distress and suicide intent in a sample of United States air force suicide decedents. *Archives of Suicide Research, 17*(2), 148–160. https://doi.org/10.1080/13811118.2013.776456.

May, A., Lawson, W., Bryan, A., & Bryan, C. (2018). Nonsuicidal self-injury, suicide ideation and suicide attempts in the National Guard. *Comprehensive Psychiatry, 86*, 115–118.

McLaughlin, C., McGowan, I., Kernohan, G., & O'Neill, S. (2016). The unmet support needs of family members caring for a suicidal person. *Journal of Mental Health, 25*(3), 212–216. https://doi.org/10.3109/09638237.2015.1101421.

Mérelle, S., Foppen, E., Gilissen, R., Mokkenstorm, J., Cluitmans, R., & Van Ballegooijen, W. (2018). Characteristics associated with non-disclosure of suicidal ideation in adults. *International Journal of Environmental Research and Public Health, 15*(5)https://doi.org/10.3390/ijerph15050943.

Monson, C. M., Fredman, S. J., Macdonald, A., Pukay-Martin, N. D., Resick, P. A., & Schnurr, P. P. (2012). Effect of cognitive-behavioral couple therapy for PTSD. *Jama, 308*(7), 700. https://doi.org/10.1001/jama.2012.9307.

Moscicki, E. K. (2014). Suicidal behaviors among adults. In M. K. Nock (Ed.). *The oxford handbook of suicide and self-injury*. Oxford: Oxford University Press.

Mueser, K. T., Deavers, F., Penn, D. L., & Cassisi, J. E. (2013). Psychosocial treatments for schizophrenia. *Annual Review of Clinical Psychology, 9*, 465–497.

National Center for Telehealth and Technology & Defense Suicide Prevention Office [T2 & DSPO] (2016). *Department of Defense suicide event report CY 2015 annual report.* Retrieved from http://www.dspo.mil/Prevention/Data-Surveillance/DoDSER-Annual-Reports/.

Nock, M. K., Holmberg, E. B., Photos, V. I., & Michel, B. D. (2007). Self-injurious thoughts and behaviors interview: Development, reliability, and validity in an adolescent sample. *Psychological Assessment, 19*(3), 309–317. https://doi.org/10.1037/1040-3590.19.3.309.

Pilling, S., Bebbington, P., Kuipers, E., Garety, P., Geddes, J., Orbach, G., et al. (2002). Psychological treatments in schizophrenia: I. Meta-analysis of family intervention and cognitive behaviour therapy. *Psychological Medicine, 32*(5), 763–782.

Ramchand, R., Acosta, J., Burns, R., Jaycox, L., & Pernin, C. (2011). *The war within: Preventing suicide in the U.S. Military.* Santa Monica, CA. Retrieved from https://www.rand.org/pubs/monographs/MG953.html.

Rudd, M. D., Bryan, C. J., Wertenberger, E. G., Peterson, A. L., Young-McCaughan, S., Mintz, J., et al. … Bruce, T. O. (2015). Brief cognitive-behavioral therapy effects on post-treatment suicide attempts in a military sample: Results of a randomized clinical trial with 2-year follow-up. *American Journal of Psychiatry, 172*(5), 441–449. https://doi.org/10.1176/appi.ajp.2014.14070843.

Sels, L., Ceulemans, E., & Kuppens, P. (2017). Partner-expected affect: How you feel now is predicted by how your partner thought you felt before. *Emotion, 17*(7), 1066–1077. https://doi.org/10.1037/emo0000304.

StataCorp (2017). *Stata statistical software: Release 15.* College Station, TX: StataCorp LLC.

Substance Abuse and Mental Health Services Administration (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 national survey on drug use and health.* Rockville, MD.

Till, B., Tran, U. S., & Niederkrotenthaler, T. (2017). Relationship satisfaction and risk factors for suicide. *Crisis, 38*(1), 7–16. https://doi.org/10.1027/0227-5910/a000407.

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575–600. https://doi.org/10.1037/a0018697.

Van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012). Thwarted belongingness and perceived burdensomeness: Construct validity and psychometric properties of the interpersonal needs questionnaire. *Psychological Assessment, 24*, 197–215.

Wall, H. K., Beagan, B. M., O'Neill, J., Foell, K. M., & Boddie-Willis, C. L. (2008). Addressing stroke signs and symptoms through public education: The stroke heroes act FAST campaign. *Preventing Chronic Disease, 5*(2), A49.

West, T. V., & Kenny, D. A. (2011). The truth and bias model of judgment. *Psychological Review, 118*(2), 357–378.

Whisman, M. A., & Uebelacker, L. A. (2006). Impairment and distress associated with relationship discord in a national sample of married or cohabiting adults. *Journal of Family Psychology, 20*(3), 369–377. https://doi.org/10.1037/0893-3200.20.3.369.

Wilhelm, P., & Perrez, M. (2004). *Social Indicators Research, 67*(1), 183–246.