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## Observed Couple Interactions Among White and Black Persons With Type 2 Diabetes

Vicki S. Helgeson<sup>1</sup>, Jeanean B. Naqvi<sup>1</sup>, Tiffany Gary-Webb<sup>2</sup>, and Mary Korytkowski<sup>3</sup>

<sup>1</sup> Department of Psychology, Carnegie Mellon University

<sup>2</sup> Graduate School of Public Health, University of Pittsburgh

<sup>3</sup> School of Medicine, University of Pittsburgh

The majority of observed couple communication research has focused on physically healthy couples and those who are White, educated, and affluent. In the present study, we observed persons with Type 2 diabetes and their romantic partners discuss how to improve diabetes management; afterward, we measured positive affect, negative affect, and discussion evaluations. We also measured mood and self-care behavior over the next 2 weeks. Couples (n = 207) were recruited from the community and varied in education, income, and race. Half of patients were White (53%), and half were Black (47%). Results showed that observed patient warmth was related to a more positive evaluation of the discussion, more postdiscussion positive affect, and poorer 2-week dietary adherence; and observed patient distress was related to a more negative discussion evaluation, more postdiscussion negative affect, and worse mood over the next 2 weeks. Two of the findings were moderated by race, in the direction of links being stronger for Black than White patients. Partner warmth was rarely related to outcomes, but partner negativity was related to patient's lower happy mood and higher angry mood over the next 2 weeks, and patient's poorer 2-week dietary adherence. Future research on couple interactions should attend to important contextual variables such as race, ethnicity, income, and social status.

Keywords: couple interaction, diabetes, race, negative interactions

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It is often said that communication is one of the cornerstones of a healthy relationship. Indeed, a wealth of observational studies has shown that the way couples communicate with one another, especially when resolving conflict, is strongly linked to relationship satisfaction and relationship quality (Friedlander et al., 2019). The effects of communication extend even further than the health of the relationship—in fact, some studies have linked patterns of communication to better psychological and physical health for the individuals within a relationship (e.g., Smith et al., 2012). However, the vast majority of this research has been conducted with physically healthy couples who are predominantly White and middle class. The goal of the present research is to examine the link of couple communication behaviors to psychological and behavioral health in a population that has seldom been studied: White and Black couples in which one person has Type

Jeanean B. Naqvi b https://orcid.org/0000-0002-7014-2990

Mary Korytkowski D https://orcid.org/0000-0001-7131-8903

2 diabetes (T2D). To that end, a major focus of this study is to explore the moderating impact of race.

Before presenting the study, we briefly review the literature on observational studies of couple communication among physically healthy couples. Then, we turn to observational research on couples coping with chronic illness. Finally, we present relationship research relevant to race to inform predictions about race as a moderator of the relation of couple communication to psychological and behavioral health.

## **Observational Studies of Couple Communication**

Previous research has shown that observational measures of couple communication have been linked to relational and health outcomes. A recent review of the literature on the implications of observed couple communication for relationship outcomes showed that positive communication (e.g., warmth, expressions of positive affect, or support) predicts marital satisfaction, whereas couple negativity (e.g., disengagement or hostility) predicts marital dissatisfaction and divorce (Friedlander et al., 2019). Studies of healthy couples have linked observed hostile behavior to a longer time for wound healing and a greater inflammatory response (Kiecolt-Glaser et al., 2005), couple criticism to higher cortisol reactivity (Rodriguez & Margolin, 2013), and marital discord (e.g., low warmth, high hostility, and high dominance) to asymptomatic evidence of coronary artery disease (Smith et al., 2012). These studies demonstrate the potential impact that couple communication has on the behavioral and psychological health of each couple member.

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Vicki S. Helgeson bttps://orcid.org/0000-0002-2099-4714

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Correspondence concerning this article should be addressed to Vicki S. Helgeson, Department of Psychology, Carnegie Mellon University, Pittsburgh, PA 15213, United States. Email: vh2e@andrew.cmu.edu

One major limitation of prior observational research is that few studies have focused on couples that are diverse in terms of race, ethnicity, culture, sexual orientation, or income (Friedlander et al., 2019). Some evidence suggests that findings cannot be generalized across these important contextual variables. An observational study of Pakistani couples in Pakistan and immigrant Pakistani and White couples in the U.S. showed that the relation of positive marital interactions to marital satisfaction was stronger for American couples than either group of Pakistani couples (Rehman & Holtzworth-Munroe, 2007). In addition, an early study that compared marital perceptions among White and Black couples found that affective affirmation (i.e., affirming spouse ideas and expressions of caring) was a stronger predictor of marital happiness among Black than White couples, although other marital interactions were equally linked to happiness for Black and White couples (Oggins et al., 1993).

Emerging research has shown that marital interactions that have been consistently demonstrated to be destructive among White affluent couples may not have the same effects among couples with fewer economic resources. One such interaction is the demand/ withdrawal pattern of behavior in which one couple member demands (often the woman in different-sex relationships), while the other couple member withdraws (often the man in different-sex relationships) in response to conflict. In a study of racially and economically diverse different-sex couples, Ross et al. (2019) found that the demand/withdrawal pattern was related to a decline in wife satisfaction over 18 months among affluent couples, but that male withdrawal behavior was adaptive for couples with fewer resources. The authors suggested that withdrawal behavior could provide an opportunity for de-escalation and be adaptive among couples who have fewer socioeconomic resources to meet one partner's demands. The sparse research in this area suggests that an investigation of contextual factors affecting marital interactions and their implications for health is sorely needed.

# Observational Studies on Couples Coping With Chronic Illness

There is a vast literature on couples coping with chronic illness showing links between couple interactions and health outcomes (see Rosland et al., 2012 for reviews). Although the majority of these studies rely on self-reports of couple interactions, there is a substantive literature that has examined observed couple communication and health in the area of cancer. An observed discussion of cancer-related concerns among people with head and neck cancer and their spouses distinguished between the expression of positive and negative emotion and found that spouse expression of negative emotion was linked to better cognitive processing of the cancer experience for both patients and spouses (Bakhshaie et al., 2020). In a study of persons with gastrointestinal cancer, higher observed expressiveness during a self-disclosure intervention was related to improvements in relationship quality over 8 weeks (Porter et al., 2012). Other studies have used more naturalistic methods that entail persons with cancer and their spouses wearing devices to capture their daily conversation (Reblin et al., 2020; Robbins et al., 2018). These studies report that the majority of communication is not about cancer, but that the nature of cancer-related communication is linked to patient and caregiver well-being (Reblin et al., 2020). Substantive

conversation about non-cancer-related topics also is linked to better patient well-being (Robbins et al., 2018).

Couple communication is particularly important in the context of T2D. The primary ways in which people with T2D manage their disease involve diet and exercise-two behaviors that are likely to have implications for couples' daily lives. There is a wealth of literature on adults with T2D that has shown marital relationships and spousal support impact how the patient adjusts to and manages the disease (Strom & Egede, 2012), but the vast majority of that research relies on relationship self-reports. One observational study focused on the way European American and Latinx couples resolved disagreements about diabetes management (Fisher et al., 2000) and found that Latinx couples displayed more warmth, less hostility, and less avoidance but also less problem resolution and more off-task behaviors than European American couples. However, the investigators did not examine links of observed behaviors to relationship or health outcomes. The current authors also conducted an observational study of Black and White couples in which one person had T2D-the sample examined in the present article. In a previous report on this sample, an observational measure of communal coping (i.e., the extent to which couple members appraised the illness as shared and collaborated to manage the illness) was linked to better relationship quality, reduced psychological distress, and improvements in self-care behavior and decreases in diabetesrelated distress over 6 months (Helgeson et al., 2019; Van Vleet et al., 2019). When race was examined, Black persons were less likely to engage in communal coping than White persons, and observed communal coping was more strongly related to reduced distress among White persons than Black persons (Helgeson et al., 2019).

## **Relationship Research: A Focus on Race**

Although there is a large literature on racial/ethnic health disparities in the prevalence of and mortality from chronic disease (National Center for Health Statistics, 2016), researchers have rarely examined the implications of race or ethnicity for the link between psychosocial variables and chronic disease adjustment. Because relationships are undoubtedly the psychosocial factor that has received the most attention, here, we examine the implications of race for the link of relationships to health. Though existing literature largely focuses on support rather than communication, this literature can inform predictions about how race might moderate the links of observed couple interactions to outcomes.

The majority of studies examining race differences in the link between support and health have suggested stronger relations of supportive interactions to health outcomes for Black than White persons. One study showed that support from family and friends was more strongly linked to reduced depressive symptoms among African Americans than Whites (Assari & Lankarani, 2018), and another study showed that the lack of social support was a stronger predictor of distress for Blacks than Whites (Lincoln et al., 2003). In a recent study of individuals with T2D, the link between communal coping and glucose and diet self-care was stronger for Black than White participants (Basinger & Hartsell, 2020). One study did diverge from these findings, showing that social support was linked to lower distress among White participants but was unrelated to distress among African Americans (Morin & Midlarsky, 2016). In general, supportive interactions appear to be more impactful for the health of Black compared to White persons.

Given that supportive interactions appear to play a more important role in the health of Blacks than Whites, it would seem to follow that unsupportive interactions would be more detrimental for Blacks than Whites. However, unsupportive interactions appear to be more detrimental for Whites than Blacks. One study showed that family negative interactions (e.g., criticism or getting on their nerves) were a stronger predictor of distress for Whites than Blacks (Lincoln et al., 2003). Another study showed that observed destructive conflict in couples (e.g., yelling or insulting) was equally predictive of divorce in Black and White couples 16 years later (Birditt et al., 2010), but that husband withdrawal behavior (typically construed as a negative behavior) predicted lower rates of divorce among Blacks but not Whites. Finally, an older study showed that couple conflict predicted poorer marital well-being for White but not Black couples (Orbuch et al., 1993). The authors reasoned that Black persons may not interpret some negative behaviors, such as interrupting and negative tone of voice, as problematic as White persons do. Overall, despite supportive interactions having a stronger effect on health outcomes for Blacks compared to Whites, unsupportive interactions appear to have a weaker effect on psychological health and marital outcomes for Blacks compared to Whites.

Two explanations are typically offered for these race differences in the link between supportive/unsupportive interactions and health. First, there may be cultural differences in how Blacks and Whites value and interact with their family. Some evidence shows that Blacks may be more culturally collectivistic and family-oriented than Whites (Gaines et al., 1997; Sarkisian & Gerstel, 2004), which may lead Blacks to lean on family members as a source of support more often compared to Whites. It has also been suggested that Black and White individuals exhibit different communication patterns: Kochman (1981) posits that Black individuals use a highkeyed mode of communication that is "animated, interpersonal, and confrontational," whereas White individuals use a low-keyed mode of communication that is "dispassionate, impersonal, and nonchallenging" (p. 18). Given these cultural differences in communication styles, interactions that might be considered negative or unsupportive among White individuals may not be considered as unsupportive among Black individuals.

Second, racial differences in the structural barriers faced by Blacks compared to Whites may affect the link between support and health. Blacks may rely on family as an important source of support for facing the institutional racism that Whites do not experience (Sarkisian & Gerstel, 2004; Williams et al., 2010). Because Black men are more likely than White men to be incarcerated (Bronson & Carson, 2019) and Black men and women are more likely than White men and women to experience lethal force by law enforcement (DeGue et al., 2016), Blacks might exercise more of a confrontational or controlling tone in an attempt to protect family members from societal harm. Thus, interactions that might be considered unsupportive from a White perspective may not be as harmful from a Black perspective. Though the mechanism underlying race differences is unclear, previous studies seem to demonstrate that supportive interactions are more impactful for the psychological health of Blacks compared to Whites, but that unsupportive interactions may be less impactful for the psychological health of Blacks compared to Whites.

#### Introduction to the Present Study

We examined the implications of observed marital interactions for psychological and behavioral outcomes among couples in which one person had T2D. We focused on T2D because it is an illness that is managed with behaviors that are likely to influence the spouse, and because the spouse relationship has been shown to be critical to patient psychological adjustment and illness management. Because we were interested in how couple members communicate about diabetes and the implications of that communication for how patients adjust to disease, we observed couple members discuss diabetes management difficulties rather than a relationship conflict, which is the subject of most observational research with healthy couples.

We studied couples who varied in race, education, and income because most marital interaction research has been limited by its focus on White, educated, and affluent couples who are healthy (Karney, 2021). (We also note that prior research has been conducted by a predominantly White, educated set of researchers.) Diabetes is an important context in which to examine race as a moderator of the relation of marital interactions to health because African Americans have a higher rate of T2D compared to Whites, and among those with T2D, African Americans may have lower glycemic stability (Naranjo et al., 2012). To our knowledge, this is only the second study (see Fisher et al., 2000) to examine observed conversations between adults with T2D and their romantic partners.

The primary study goal was to examine the links of affective dimensions of these couple interactions, specifically expressions of positive affect (i.e., warmth), negativity (e.g., hostility), and distress (e.g., anxiety or sadness), to patient reports of psychological and behavioral health. Although there are myriad theoretical frameworks that have been applied to couple communication (e.g., opposition vs. co-operation [Overall & McNulty, 2017]; affiliation vs. control [Cundiff et al., 2015]), we focused on positivity and negativity because there is precedent for making these broad distinctions in the couple interaction literature, especially with respect to crosscultural research (e.g., Rehman & Holtzworth-Munroe, 2007; Williamson et al., 2012) and in the single diabetes observational study (Fisher et al., 2000). We also viewed this study as an initial attempt to understand interactions among Black and White couples in which one person has T2D. Importantly, we made the distinction between high arousal negativity, which includes hostility and criticism, versus distress, which includes sadness and anxietyconsistent with previous research (Bakhshaie et al., 2020). Expressions of positive affect, negativity, and distress were measured for both patients and their romantic partners. We hypothesized that the expressions of warmth would be linked to better patient outcomes, and that expressions of negativity and distress would be linked to worse patient outcomes.

The second study goal was to examine whether race moderated the links of observed behaviors to outcomes. We hypothesized that warmth would be more strongly related to outcomes for Black than White persons because previous research has suggested that positive family interactions may be more beneficial for Blacks than Whites. In addition, we hypothesized that negativity might be less strongly connected to outcomes for Black persons than White persons, as previous research has suggested that Black persons may find negative interactions to be less problematic. We did not have a prediction regarding whether race moderated the link of expressions of distress to outcomes.

We examined three sets of patient outcomes to reflect the patient's initial response to the discussion and effectiveness of the discussion, the patient's psychological well-being, and the patient's diabetes self-management: (a) postdiscussion measures to assess progress resolving the problem, evaluation of the discussion, and positive and negative affect; (b) aggregate measures of daily mood (anxiety, depression, anger, or happiness) over the next 14 days; and (c) aggregate measures of diabetes self-management (diet, exercise, and medication adherence) and blood glucose readings over the next 14 days. These outcomes represent important facets of diabetes adjustment.

## Method

## Participants

Participants were 207 persons who had been recently diagnosed with T2D and were currently living with or married to a romantic partner. Patients were 55% male; 53% White and 47% Black. Romantic partners were of a different sex in the majority of couples (four same-sex couples). Ages ranged from 25 to 82 (M = 53). Complete demographic information is shown in Supp Table 1. There was a wide range of family income, with 11% less than \$20,000 and 12% in excess of \$100,000.

#### Recruitment

Patients were recruited from the community (e.g., health fairs, mass media advertising, and brochures in physician offices). To oversample Black individuals, we targeted churches and health fairs located in the Black community. Interested persons contacted the research team by phone and were screened for eligibility. To be eligible, patients had to have been diagnosed with T2D within the past 5 years, not have another illness that affected their daily life more than diabetes (e.g., cancer), have a partner who did not have diabetes, and be married or cohabiting with their partner in a marital-type relationship for at least 2 years. Of the 658 people who contacted us, the majority were ineligible because they reported being diagnosed more than 5 years ago. Recruitment details are reported elsewhere (Helgeson et al., 2019). Our final sample size was 207 couples.

#### Procedure

The study received Institutional Review Board's approval from the Carnegie Mellon University and consisted of an in-person interview which included a videotaped discussion of diabetes management difficulties followed by a 14-day daily diary period. Couples were met by two research assistants for the initial interview in either their homes (71.5%) or at the university research laboratory with mileage reimbursement (28.5%). Prior to the start of any study procedures, informed consent was obtained from both individuals. Next, each couple member was interviewed separately in a private room. During the interviews, each partner independently completed a questionnaire in which they rated the extent to which a series of 12 diabetes issues posed difficulties (e.g., diet, exercise, taking medication, and visiting the doctor). Couple members were then reunited and asked to discuss their most difficult diabetes issue for 8 min with the goal of trying to find ways to resolve the problem. The research assistant left the couple alone for their discussion, which was videotaped and later coded. Because the voices of three couples were not audible on the videotapes, they were not coded, which left a final sample of 204 couples. After 8 min, the research assistant returned and administered the postdiscussion questionnaire (described in detail below) to each couple member separately.

At the end of this session, the 2-week daily diary portion of the study was explained to couples. Each couple member was asked to complete a brief survey at the end of the day for the next 14 consecutive days. The surveys consisted of questions regarding participants' mood and self-care on that day. To facilitate question-naire completion, we distributed iPads to patients and partners. Participants were paid \$50 for the in-person and \$100 for the daily diary portion of the study.

## Videotape Coding

The coding system was adapted from the observational coding systems and training methods of Feeney and colleagues (Collins & Feeney, 2000; Feeney, 2004, 2007). Two independent coders provided a rating for each behavioral code on a scale from 1 to 5. Two persons coded the patient, and two different persons coded the patter. The scale represented both the frequency of occurrence of the code and the quality or intensity of the code: 1 = not at all; 2 = rare or low quality; 3 = occasional or moderate quality. Coders practiced using the system with a set of videotaped interactions until their ratings were consistent with the codes that we established for those interactions, that is, until intra-class correlation coefficient (ICCs) reached or exceeded .80.

Videotape coding took place over four consecutive summers. Because we were coding both men and women and both Black and White persons, we ensured that there was diversity across coders with respect to gender and race. Of the videotaped persons coded, 16% were coded by White males, 11% by Black males, 37% by White females, 16% by Black females, and 20% by Asian females. Each person coded a roughly equal number of patients and partners, and each person was paired with different members of the team. Coders watched the video once to get a sense of the interaction, then a minimum of two additional times, stopping the video at least every 2 min to take detailed notes on each of the codes (in actuality, coders usually paused more often than this). Coders then examined their notes across the entire interaction, using these notes to indicate a code for each behavioral code category. After training, coders typically took 1 hr to code a single person in a single video.

The two coders met with the project director to reconcile discrepancies between their ratings. When the two coders' ratings differed by one point, the average was taken. When the difference was more than one point, or when one coder selected "not at all" and the other coder selected any other code, the issue was resolved by the project director who arbitrated the discussion. Coders would make their case for their rating with detailed notes they had taken, including time stamps of when example behaviors had taken place. The project director made the final decision. The behavioral codes examined in this article are described below. The mean values and ICCs for each patient and partner code are shown in Supplemental Table 2.

#### Patient and Partner Warmth

There was a single warmth or positive affect code for both patients and partners that was described as "positive affect/ warmth/friendliness" and was defined as a mostly nonverbal code that reflected: "Interacting in a warm, friendly, and positive manner with spouse, often through smiles, laughter, positive voice tone (positive and enthusiastic inflections), and positive facial expressions. Includes humor but not ridiculing."

## Patient Negativity

There were several codes for negativity for patients that were combined into a single index because of their intercorrelations (r = .30 to .52, p < .001). These included the following: (a) *negative* or hostile affect which was described as a mostly nonverbal code that reflected, "Exhibiting any negativity or hostility toward or dissatisfaction with the spouse. Examples include patronizing tones, showing annoyance and irritation at spouse. Nonverbal behaviors include rolling eyes, negative sighing, and irritated/annoyed tone of voice. Note that the affect here is more active than sad"; (b) disagreement, which was defined as: "Any disagreement. May be quibbling or arguing. One small disagreement without argument would probably be scored a 2. Raised voice and yelling would count for a higher rating"; (c) rejection of support attempts, which was defined as: "Rejecting the spouse's assistance or advice, possibly by verbally communicating that the assistance is not desired or appreciated, by disagreeing, and/or by criticizing the spouse's advice and suggestions"; and (d) defensive: "Patient feels falsely accused and will attempt to deflect criticism by defending self or accusing partner of similar behavior. Person may try to explain or justify the behavior in question, deny the partner's suggestions ('I do NOT do that'), or cross complain ('Well, YOU do it too!')." The internal consistency of the four codes was high ( $\alpha = .76$ ).

## Partner Negativity

There also were several codes for negativity for partners that were combined into a single index because of their intercorrelations (r ranged from 44 to .61, p < .001). These codes included the following: (a) negative or hostile affect which was described as a mostly nonverbal code identical to the one coded for patients; (b) demanding, which was defined as: "Spouse is controlling if he/she appears to be too bossy, too directive, or too dominating in his/her caregiving attempts. For example, the spouse may tell the patient exactly what to do (or strongly say what they SHOULD DO) or issue commands to manage diabetes instead of offering helpful suggestions/advice. The spouse may appear to 'have all the answers' and may be too dominating or forceful in his/her support (or lack of support) of the patient's behavior. Includes demands and nagging."; (c) disagreement, which was identical to the patient code; and (d) criticism, which was defined as: "These are negative comments that the spouse makes -criticizing the patient and/or the patient's behavior. Includes accusations: asking a question which implies that the patient did something wrong or making a direct accusation." The internal consistency of the four codes was high ( $\alpha = .81$ ).

## **Patient Distress**

There were two behavioral codes to signify distress: (a) *sadness*, defined as: "Expression of sorrow and grief or resignation. Sadness is most apparent from behavioral cues, such as crying, looking down and dejected, sighing, speaking in a soft or low tone, and holding the head down. Verbalizations can involve expressing unhappiness or disappointment" and (b) *anxiety*, defined as: "Expresses discomfort, anxiety, or stress; behaviors include fidgeting, looking nervous or uncomfortable, playing with objects, nervously tapping foot or fingers, anxious shaking leg, or biting nails; verbal cues include speaking in a tight tone, answering short or yes/no responses without elaboration, and frequent throat clearing." These two codes were modestly correlated, r = .23, p < .05, and had low base rates. Thus, we combined them into a single distress index to enhance the variability in this code—viewing the measure as more of a composite of anxiety and sadness.

#### **Partner Distress**

We used the same two codes for partners, but the base rates for partners were even lower than that of patients and the ICCs were unacceptable (ICC = .27 and M = 1.13 for sadness; ICC = .58 and M = 1.15) for anxiety. Thus, we could not include this partner index in the analyses.

## **Patient Postdiscussion Outcomes**

The postdiscussion questionnaire consisted of three measures: one that evaluated the discussion in terms of its overall positive and negative quality, one that reflected how much progress was made in terms of resolving the diabetes management difficulties, and a measure of overall current positive and negative affect following the discussion.

#### **Postdiscussion Evaluation**

Participants completed three postdiscussion scales developed by Feeney and Cassidy (2003). First, participants indicated the extent to which six words described their discussion (argumentative, pleasant, disagreeable, cooperative, helpful, and annoving) on a 5-point scale, ranging from not at all (1) to very much (5). After reverse coding the three negative words, we took the average ( $\alpha = .75$ ). Second, participants indicated the extent to which they experienced eight emotions during the discussion (disappointed, angry, happy, nervous, satisfied, enthusiastic, sad, and excited) on a 5-point scale, ranging from not at all (1) to a lot (5). The four negative terms were reverse coded, and the items were averaged ( $\alpha = .84$ ). Finally, participants were asked to think about how their partner treated them during the discussion and to indicate how much they felt a certain way (cared about, accepted, ignored, listened to, put down, respected, disliked, attacked, or understood) using the same 5-point scale. Again, the four negative items were reverse coded, and the average was taken ( $\alpha = .87$ ). Because the three scales were highly intercorrelated (r ranged from .59 to .68), we took the average to represent an index of discussion evaluation, with higher numbers representing a more positive evaluation.

## Progress

Patients rated three items, ranging from 1 = none/not at all to  $5 = a \ lot$ : "How much progress did you make in resolving this diabetes problem?"; "Do you think discussing this problem helped to resolve it?"; and "Did you learn anything from this discussion?" Because the internal consistency was high ( $\alpha = .86$ ), the three items were averaged to form a diabetes progress index.

## Positive and Negative Affect

The Positive and Negative Affect Scale (Watson et al., 1988) was used to measure positive and negative affect. Participants were asked to indicate on a 5-point scale the extent to which 10 positive and 10 negative mood words described how they felt at that moment:  $1 = very slightly or not at all, 2 = a little, 3 = moderately, 4 = quite a bit, 5 = extremely. The internal consistency was good for positive affect (<math>\alpha = .92$ ) and negative affect ( $\alpha = .89$ ).

## **Patient Daily Diary Outcomes**

The daily diary measures described below were aggregated across the 14 days following the in-person interview. Variance component analysis for daily diary data was conducted to determine the reliability of these scales (Bolger & Laurenceau, 2013).

#### Mood

Patients rated how they felt over the course of the day with 12 items (1 = *not at all*; 5 = *a lot of the time*). Three items measured depressed mood (sad, depressed, or unhappy;  $\alpha$  = .74), happy mood (happy, pleased, or cheerful; alpha = .70), and angry mood (angry, annoyed, or mad; alpha = .72). The items for depressed and happy mood scales were taken from the Profile for Mood States (Usala & Hertzog, 1989), and three face valid angry mood items were developed for this study.

#### **Diabetes Self-Care Outcomes**

Patients were asked three face valid questions regarding the critical daily self-care behaviors for T2D: (a) "How much did you follow your diet today?" (1 = not at all to 5 = very much), (b) "Did you exercise today?" (Yes, No), and (c) "Did you take your medication today?" (Yes, No). Because the three aggregate variables were not related to one another, we analyzed them separately. We also asked patients to report the most recent blood glucose reading (i.e., higher numbers indicate poorer stability). The aggregate variables for diet and blood glucose readings are mean values, whereas the aggregate variables for exercise and medication are the proportion of the 14 days that they exercised and took medication.

#### **Overview of Analysis**

First, we examined the patient and partner demographic and patient illness-related variables shown in Supp Table 1 to see if they were correlated with any of the behavioral codes. To the extent that relations emerged, these variables were statistically controlled in all analyses because they had the potential to obscure any relations of the behavioral codes to outcomes.

Second, we examined the intercorrelation of the patient and partner behavioral codes for Black and White couples separately (see Table 1). Although the relations are minimal among the three patient codes (r ranged from -.18 to .08) and between the two partner codes (Black: r = -12; White: r = -.21), there were substantial correlations between patient and partner warmth and between patient and partner negativity, suggesting that it could be problematic to include both patient and partner behavioral codes in the same regression equation. (Because different coders were assigned to each patient and partner, these patient/partner correlations are not a result of coders' views of the patient affecting their views of the spouse.) Thus, to test our primary hypotheses, we conducted two sets of multiple regression analyses to predict patient postdiscussion and aggregate daily diary outcomes-the first with the three patient behavioral codes (warmth, negativity, and distress) and the second with the two partner behavioral codes (warmth and negativity). In each analysis, we entered covariates on the first step of the equation along with race, the behavioral codes on the second step, and the interactions of the behavioral codes with race on the final step of the equation. When interactions were significant, we examined simple slopes. If none of the interactions were significant, we removed them from the equation and reported results for the main effects model.

#### Results

## **Examining Potential Covariates**

Patient age was related to lower negativity (r = -.14, p < .05)and partner education was related to higher warmth (r = .14, p <.05). Behavioral codes were not related to partner age, patient education, length of disease, marital status, or length of relationship. Household income was related to lower patient negativity (r = -.18, p < .05), higher partner warmth (r = .17, p < .05), and lower partner negativity (r = -.14, p < .05). Patient sex was related to patient distress, t(203) = 2.73, p < .01, such that females scored higher (M = 1.42, SD = .59) than males (M = 1.23,SD = .37). Patient sex was also related to partner warmth t(202) = 2.34, p < .05, such that males' partners were coded as warmer (M = 2.81, SD = .96) than females' partners (M = 2.51,SD = .91). Patients who were not taking insulin had higher partner warmth (M = 2.78, SD = .93) than patients who were taking insulin (M = 2.38, SD = .94). Thus, patient age, partner education, patient sex, household income, and whether the patient was on insulin or not were statistically controlled in all analyses.

#### Table 1

Intercorrelations Among Patient and Partner Behavioral Indices for White and Black Couples

Variable	1	2	3	4	5
1. Patient warmth		16+	18+	.46***	07
<ol> <li>Patient negativity</li> <li>Patient distress</li> </ol>	12 07	.08	.03	04 $18^{+}$	.60
<ol> <li>Partner warmth</li> <li>Partner negativity</li> </ol>	.51*** .05	.06 .60***	11 .27**	12	21*

*Note.* White persons are shown above the diagonal, and Black persons are shown below the diagonal.

p < .10. \*p < .05. \*\*p < .01. \*\*\*p < .001.

## **Race Comparisons on Behavioral Codes**

We conducted a one-way analysis of variance with race as the independent variable on each of the patient and partner behavioral codes. There was only one race difference, and it appeared for partner warmth. White partners (M = 2.83, SD = .92) were coded as warmer than Black partners (M = 2.49, SD = .96), F(1, 201) =6.46, p < .05, partial eta<sup>2</sup> = .03.

#### Predicting Patient Postdiscussion Outcomes

The results from the first regression analysis with patient behavioral codes are shown in the top half of Table 2. Patient warmth predicted a more positive evaluation of the discussion, greater positive affect, and lower negative affect. By contrast, patient negativity predicted less discussion progress, a poorer evaluation of the discussion, and lower patient positive affect. Patient distress predicted a poorer evaluation of the discussion and higher negative affect. There were no interactions of patient behavioral codes with race.

The results from the second regression analysis with partner behavioral codes are shown in the bottom half of Table 2. The only outcome predicted by partner behavior was the patients' evaluation of the discussion. Greater partner warmth and less partner negativity predicted patients evaluating the discussion as more positive. There were no interactions of partner behavioral codes with race.

## Predicting Aggregates of Patient 14-Day Daily Diary Mood

As shown in the top half of Table 3, patient warmth predicted greater patient aggregate happy mood over the next 2 weeks. However, patient negativity did not predict any of the outcomes. Greater patient distress predicted all four aggregate mood outcomes over the next 2 weeks: lower happy mood, higher depressed mood, higher anger, and higher anxiety. There were no interactions involving race.

As shown in the bottom half of Table 3, partner negativity predicted less patient happy mood and more patient anger over the next 2 weeks. Partner warmth did not predict any of the outcomes. There were no interactions involving race.

## Predicting Aggregate of Patient 14-Day Daily Diary **Diabetes Self-Care**

As shown in the top half of Table 4, patient warmth did not predict patient self-care over the next 2 weeks. However, patient negativity predicted poorer dietary adherence. There was also an interaction between race and patient negativity that predicted patient reported blood glucose readings. Patient negativity was related to higher blood glucose readings for Black patients (B = 20.79, SE = 8.39, p < .01) but not White patients (B = -.90, SE =7.24, p = .90). Patient distress interacted with race to predict dietary adherence, such that patient distress was related to lower adherence for Black patients (B = -.44, SE = .10, p < .01) but was unrelated to dietary adherence for White patients (B = -.04, SE = .07,p = .53). None of the behavioral codes predicted medication or exercise adherence.

As shown in the bottom half of Table 4, partner warmth did not predict patient self-care, but partner negativity predicted poorer patient dietary adherence over the next 2 weeks. There were no interactions of partner behavioral codes with race.

## Discussion

The primary goal of this study was to determine whether observations of how couples interacted during a discussion of diabetes difficulties would be related to how patients viewed the discussion immediately afterward as well as patients' mood and

Table 2

Prediction of Patient Postdiscussion Outcomes (Unstandardized Betas and Standard Errors)

Predictor	Discussion progress	Discussion evaluation	Positive affect	Negative affect
Patient predictors				
Patient age	.004 (.01)	.004 (.003)	.006 (.006)	.0021 (.004)
Partner education	14 (.05)**	04 (.03)	02 (.05)	.06 (.03)+
Patient sex (female)	04 (.14)	.01 (.07)	04 (.13)	02 (.08)
Insulin	02 (.16)	.02 (.08)	02 (.15)	$.16(.09)^+$
Income	.03 (.03)	.02 (.01)	.02 (.03)	$03(.02)^{*}$
Patient race (Black)	.19 (.15)	.13 (.08)	.43 (.14)**	.03 (.09)
Patient warmth	.05 (.08)	.14 (.04)***	.21 (.07)**	12 (.05)**
Patient negativity	<b>22</b> (.11)*	28 (.06)***	25 (.10)*	05 (.06)
Patient distress	04 (.07)	10 (.04)**	04 (.07)	.20 (.04)***
Spouse predictors				
Patient age	.005 (.01)	.009 (.003)	.001 (.006)	001 (.004)
Partner education	13 (.05)*	04 (.03)	002 (.05)	.06 (.03)
Patient sex (female)	04 (.14)	.06 (.08)	01 (.14)	.01 (.08)
Insulin	02 (.16)	.09 (.09)	04 (.16)	.13 (.10)
Income	.04 (.03)	.03 (.02)	.03 (.03)	$04(.02)^{*}$
Patient race (Black)	.17 (.15)	.18 (.08)	.44 (.15)**	04 (.10)
Partner warmth	07 (.08)	.12 (.04)**	.05 (.07)	$08(.05)^{+}$
Partner negativity	.05 (.10)	17 (.05)**	03 (.09)	.01 (.06)

Note. Significant behavioral predictor variables are bolded to make it easier for the reader to view the significant effects. Patient sex scored 0 = male; 1 = female; Patient race scored 0 = White; 1 = Black. \*p < .10. \*p < .05. \*\*p < .01. \*\*\*p < .001.

Predictor	Happiness	Depression	Anger	Anxiety
Patient predictors				
Patient age	.02 (.01)**	$01 (.003)^*$	$01 (.003)^*$	$01(.004)^{+}$
Partner education	02(.05)	.07 (.03)*	.06 (.03)*	.04 (.03)
Patient sex (female)	.08 (.12)	05 (.08)	02 (.08)	07 (.09)
Insulin	01 (.13)	.04 (.09)	.03 (.09)	02 (.10)
Income	004 (.02)	$04(.02)^{**}$	$04 (.02)^{**}$	$05(.02)^{**}$
Patient race (Black)	.03 (.12)	$15(.08)^{+}$	12 (.09)	$17(.10)^{+}$
Patient warmth	.13 (.06)*	07 (.05)	05 (.04)	08 (.05)
Patient negativity	$17(.09)^{+}$	06 (.08)	.02 (.06)	.003 (.07)
Patient distress	14 (.06)*	.24 (.08)**	.14 (.04)***	.16 (.05)***
Spouse predictors				
Patient age	.02 (.01)***	$01(.003)^{*}$	$01(.003)^{**}$	$01(.003)^{*}$
Partner education	02(.04)	.07 (.03)*	.05 (.03)*	$.05(.03)^{+}$
Patient sex (female)	.09 (.12)	02(.08)	06 (.07)	09 (.09)
Insulin	02 (.14)	.03 (.09)	.04 (.08)	01 (.10)
Income	.003 (.02)	$05(.02)^{**}$	$03(.01)^{*}$	$05(.02)^{**}$
Patient race (Black)	.09 (.13)	$19(.08)^{*}$	$20(.08)^{**}$	26 (.09)**
Partner warmth	.04 (.06)	07 (.04)	04 (.04)	$09(.05)^{+}$
Partner negativity	17 (.09)*	10 (.05)+	.14 (.05)**	.10 (.06)+

Predicting Aggregates of 14-Day Daily Diary Mood (Unstandardized Betas and Standard Errors)

*Note.* Significant behavioral predictor variables are bolded to make it easier for the reader to view the significant effects. Patient sex scored 0 = male; 1 = female; Patient race scored 0 = White; 1 = Black. \*p < .10. \*p < .05. \*\*p < .01. \*\*\*p < .001.

diabetes self-care over the next 2 weeks. Starting with the patients' observed behavior during the discussion, we hypothesized that observed patient warmth would be related to good outcomes and observed patient negativity and distress would be related to poor outcomes. As hypothesized, we found that observed patient warmth was related to three of the four postdiscussion outcomes—a more positive evaluation of the discussion, more positive affect, and less negative affect following the discussion. Observed patient warmth was also related to more positive affect during the next 2 weeks but not to any of the three negative mood aggregates or to any of the self-care behaviors over the next 2 weeks. Consistent with predictions,

#### Table 4

Table 3

Predicting Aggregate of 14-Day Daily Diary Patient Self-Care (Unstandardized Betas and Standard Errors)

Predictor	Medication	Diet	Exercise	BG reading
Patient predictors				
Patient age	.06 (.12)	.01 (.01)**	.61 (.21)**	36 (.33)
Partner education	47 (1.00)	02(.04)	.58 (1.75)	79 (2.82)
Patient sex (female)	09(2.71)	10(.12)	2.11 (4.76)	10.48 (7.35)
Insulin	6.27 (2.98)*	.11 (.13)	-2.26(5.47)	33.80 (8.07)***
Income	.53 (.53)	.02 (.02)	$-1.70(.95)^{+}$	80 (1.46)
Patient race (Black)	-10.00 (2.86)***	15 (.12)	.95 (5.06)	1.17 (8.09)
Patient warmth	1.05 (1.46)	.14 (.09)+	85 (2.59)	-3.66 (5.13)
Patient negativity	-1.94(2.05)	25 (.12)*	-4.67 (3.65)	90 (7.24)
Patient distress	49 (1.34)	04 (.07)	-1.87(2.40)	1.59 (4.45)
Race $\times$ Patient Warmth		21 (.13)		10.63 (8.27)
Race $\times$ Patient Negativity		.20 (.18)		21.69 (11.03)*
Race $\times$ Patient Distress		39 (.12)**		-7.46 (7.86)
Spouse predictors				~ /
Patient age	.06 (.11)	.02 (.01)**	.65 (.21)**	38 (.34)
Partner education	64 (.93)	02 (.04)	.55 (1.75)	.34 (2.78)
Patient sex (female)	1.06 (2.47)	17 (.12)	1.07 (4.70)	11.86 (7.38)
Insulin	$5.34(2.83)^+$	.15 (.14)	-2.44 (5.55)	34.49 (8.22)***
Income	.60 (.50)	.04 (.02)	-1.52 (.94)	-1.23(1.45)
Patient race (Black)	$-9.00(2.68)^{***}$	13 (.13)	.67 (5.10)	1.66 (8.28)
Partner warmth	42 (1.31)	01 (.07)	-1.19 (2.55)	2.34 (3.93)
Partner negativity	-1.72 (1.74)	17 (.08)*	-2.65 (3.20)	2.21 (4.80)

*Note.* Significant behavioral predictor variables are bolded to make it easier for the reader to view the significant effects. Patient sex scored -0 = male; 1 = female; Patient race scored 0 = White; 1 = Black. p < .10. p < .05. p < .01. p < .01.

observed patient negativity was related to three of the four postdiscussion outcomes—less perceived progress in resolving diabetes difficulties, a poorer evaluation of the discussion, and lower postdiscussion positive affect. Patient negativity was not related to any of the mood aggregates over the next 2 weeks but was related to poorer dietary adherence and interacted with race to predict patient-reported blood glucose readings (as described below). By contrast, patient expressions of distress during the diabetes discussion revealed the most consistent relations to outcomes that extended beyond postdiscussion measures. Patient expressed distress was related to two of the four postdiscussion outcomes—a poorer evaluation of the discussion and higher postdiscussion negative affect; was related to all four mood states aggregated across the next 2 weeks, and interacted with race to predict dietary adherence, as described below.

Turning to the partners' observed behavior during the discussion, we also hypothesized that observed partner warmth would be related to good outcomes and observed partner negativity would be related to poor outcomes. However, partner behaviors were not as predictive of patient outcomes. Partner warmth was related to only one outcome-patients' more positive evaluation of the discussion. Partner warmth was not linked to any of the patient's aggregate affective or self-care outcomes over the next 2 weeks. By contrast, partner negativity was related to several outcomes-patient's less favorable evaluations of the discussion, patient lower levels of happiness and higher levels of anger over the next 2 weeks, and poorer patient dietary adherence over the next 2 weeks. These findings are consistent with the idea that negative communication may be more potent than positive communication. Taken collectively, these results demonstrate that the observations of how couples interact regarding diabetes management in the context of a research study can predict not only how patients feel after the discussion but also their mood states and their management of diabetes over the next 2 weeks.

The second study goal was to examine whether the links of observed behaviors to outcomes were influenced by race. In the majority of cases, this was not supported. We had predicted that positive behaviors would be more strongly related to outcomes for Blacks than Whites because previous research has highlighted the importance of family support among Black individuals (Assari & Lankarani, 2018; Lincoln et al., 2003). Although we did not find evidence consistent with this hypothesis, we observed two interactions with race involving patient negative behaviors. Contrary to predictions, in both cases, the patient negative behavior was related to poorer self-care outcomes for Black patients but not White patients. Patient negativity was more strongly related to higher patient-reported blood glucose readings over the next 2 weeks for Blacks than Whites. Patient distress was more strongly linked to poorer dietary adherence over the next 2 weeks for Blacks than Whites.

In the context of coping with T2D, these findings provide some modest support for the idea that patient behavior during a conversation about diabetes management with a romantic partner may be more strongly linked to the health care behavior of Black than White patients. Although some previous research has shown that negative interactions are not as problematic for Black than White couples, those studies focused on psychological health and relationship outcomes. The outcomes moderated by race here are related to self-care. In the context of diabetes, self-care behavior is critical for long-term physical health (Hunter, 2016). There are two possible explanations for our findings regarding race. As discussed previously, Blacks are more collectivistic than Whites (Gaines et al., 1997; Sarkisian & Gerstel, 2004) and thus depend on romantic partners (and possibly extended family) for support more so than Whites. Second, Blacks face greater structural hardships than Whites (Sarkisian & Gerstel, 2004), making romantic partners a greater resource upon which to draw. Although we did not find any evidence that Blacks benefitted more than Whites from supportive interactions during the discussion, when Black patients exhibited negativity during the discussion that included hostility, disagreement, rejection of support, and defensive behavior, they were less likely to adhere to their diet and exhibited higher blood glucose levels during the subsequent 2 weeks. These findings must be viewed with caution, however, because they did not generalize to other self-care behaviors or to the psychological outcomes. In addition, the causal sequence between observed negative communication and poor patient self-care behavior needs to be examined by the future research.

The differential results between Blacks and Whites in the present sample cannot be explained by economic hardship alone because we statistically controlled for household income in all analyses.<sup>1</sup> However, independent of income, there is a wealth of evidence that Black persons face greater difficulties than White persons in terms of housing, work, and health care stemming from institutional racism (Williams et al., 2010). Future research would benefit from examining couples' interactions at the intersection of both income and race.

One conceptual question that arises from this research is whether the diabetes management discussion reflects the way couples discuss diabetes in their daily lives or whether we intervened in patients' lives by asking them to have this discussion. Future research in this area would benefit from the use of technology such as the Electronically Activated Recorder, which records snippets of conversation in one's daily life (e.g., Robbins et al., 2018). If these discussions are an indicator of the way couples normally communicate about diabetes, it may be that patients who are distressed and having problems with self-care communicate in a way that includes negativity, distress, and a lack of warmth. That being the case, as mentioned previously, it is not clear whether the observed communication behaviors lead to affect and self-care or whether self-care and affect lead to these communication behaviors. One multiwave longitudinal study tried to disentangle this issue with respect to observed communication and marital satisfaction (Lavner et al., 2016), but they concluded that the causal direction was unclear.

Before concluding, we acknowledge some study limitations. First, we do not have evidence that these observed interactions are related to long-term outcomes regarding psychological wellbeing, diabetes management, or physical health. Although our outcome measures were assessed following the discussion, it is

<sup>&</sup>lt;sup>1</sup> We examined whether our findings due to race could be accounted for by income by rerunning all of the analyses with income replacing race. The interaction of race with negativity and race with distress were not replicated with income. Instead, two different interactions emerged as follows: income by patient distress on postdiscussion negative affect (coeff = -.04, SE = .01, p < .01) and aggregate depressed mood over the 2 weeks (coeff = -.03, SE = .01, p < .05). In both cases, the relation of patient distress to poor affective outcomes was stronger for people with lower incomes.

possible that psychological well-being and diabetes management contributed to the nature of the discussion. Second, outcome variables were self-reported and had some empirical overlap. Because the intention of good diabetes management is to increase glucose stability, future research should include objective measures of glycemic stability prior to the interaction and 10-12 weeks later to capture potential effects of the interaction on physical health. Third, predictor variables were global measures of warmth and negativity, and there may be more specific behaviors that facilitate adjustment and behavior change. For example, we measured overall patient and partner warmth or positivity, which could have been communicated in a variety of ways. We also measured overall patient and partner negativity, but there may be important distinctions among demanding behavior, critical behavior, and expressions of hostility. Due to the correlations between patient and partner warmth and between patient and partner negativity, we examined the patient behavioral codes and the partner behavioral codes in separate analyses. However, there may be synergy in the ways that patients and partners interact that these analyses do not capture. Sequential and time series analyses of dyadic communication are techniques that could be used in the future to capture not only how one person behaves but also how the partner responds to that behavior in the moment, reflecting the dynamic nature of the interaction (Braun et al., 2010). Finally, there are a host of variables that we did not consider as predictors, most notably patient gender. We felt that doubling the number of predictor variables to capture interactions with gender would be capitalizing on chance. We urge future researchers to employ larger sample sizes so that multiple contextual variables can be taken into consideration, consistent with an intersectional approach to health (Cole, 2009).

Despite these limitations, there are notable study strengths. We examined couple interactions among a community sample that varied widely in education and income and consisted of both White and Black couples, which is a contribution to the literature in and of itself. We used a rigorous procedure to code the videotaped discussions. Independent coders evaluated patients and spouses separately so that the ratings of one person would not affect ratings of the other person and, importantly, our group of coders varied in terms of race and gender. Finally, we examined the extent to which race influenced how couple interactions were related to outcomes and found race to affect some relations. This finding alone has clear implications for future research in the area of couple communication, further demonstrating the urgent need for researchers to examine contextual factors such as race/ethnicity, education, and income.

In summary, the current study demonstrates the importance of examining the link of couple communication behaviors to relational and health outcomes among individuals with T2D. Observed patient warmth was linked to good outcomes measured immediately after the discussion. Observed patient negativity and—even moreso observed patient distress were not only linked to poorer postdiscussion outcomes but also were linked to poorer mood and poorer self-care over the subsequent 2 weeks. This is one of the few relationship studies in the literature to fully embrace the examination of race when connecting dyadic communication to relationships and health. Although race did not moderate the links of communication to most outcomes, in two cases of self-care behavior, links to patient communication were stronger for Black than White couples. Incorporating more diverse populations into the studies of couple communication is needed to enrich our understanding of the link between relationships and health.

#### References

- Assari, S., & Lankarani, M. M. (2018). Secular and religious social support better protect blacks than whites against depressive symptoms. *Behavioral Sciences (Basel, Switzerland)*, 8(5). Advance online publication. https:// doi.org/10.3390/bs8050046
- Bakhshaie, J., Bonnen, M., Asper, J., Sandulache, V., & Badr, H. (2020). Emotional disclosure and cognitive processing in couples coping with head and neck cancer. *Journal of Behavioral Medicine*, 43(3), 411–425. https://doi.org/10.1007/s10865-019-00094-5
- Basinger, E. D., & Hartsell, H. (2020). Communal coping and self-care in Black and White individuals living with Type 2 diabetes. *Health Communication*. Advance online publication. https://doi.org/10.1080/ 10410236.2020.1808408
- Birditt, K. S., Brown, E., Orbuch, T. L., & McIlvane, J. M. (2010). Marital Conflict Behaviors and Implications for Divorce Over 16 Years. *Journal of Marriage and Family*, 72(5), 1188–1204. https://doi.org/10.1111/j.1741-3737.2010.00758.x
- Bolger, N., & Laurenceau, J. P. (2013). Intensive longitudinal methods: An introduction to diary and experience sampling research. Guilford Press.
- Braun, M., Mura, K., Peter-Wright, M., Hornung, R., & Scholz, U. (2010). Toward a better understanding of psychlogical well-being in dementia caregivers: The link between marital communication and depression. *Family Process*, 49(2), 185–203. https://doi.org/10.1111/j.1545-5300 .2010.01317.x
- Bronson, J., & Carson, E. A. (2019). *Prisoners in 2017*. US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. 2019 (Issue NCJ 252156). https://www.bjs.gov/content/pub/pdf/p17.pdf
- Cole, E. R. (2009). Intersectionality and research in psychology. American Psychologist, 64(3), 170–180. https://doi.org/10.1037/a0014564
- Collins, N. L., & Feeney, B. C. (2000). A safe haven: An attachment theory perspective on support seeking and caregiving in intimate relationships. *Journal of Personality and Social Psychology*, 78(6), 1053–1073. https:// doi.org/10.1037/0022-3514.78.6.1053
- Cundiff, J. M., Smith, T. W., Butner, J., Critchfield, K. L., & Nealey-Moore, J. (2015). Affiliation and control in marital interaction: Interpersonal complementarity is present but is not associated with affect or relationship quality. *Personality and Social Psychology Bulletin*, 41(1), 35–51. https:// doi.org/10.1177/0146167214557002
- DeGue, S., Fowler, K. A., & Calkins, C. (2016). Deaths due to use of lethal force by law enforcement: Findings from the National Violent Death Reporting System, 17 U.S. states, 2009-2012. *American Journal of Preventive Medicine*, 51(5), S173–S187. https://doi.org/10.1016/j .amepre.2016.08.027
- Feeney, B. C. (2004). A secure base: Responsive support of goal strivings and exploration in adult intimate relationships. *Journal of Personality and Social Psychology*, 87(5), 631–648. https://doi.org/10.1037/0022-3514.87 .5.631
- Feeney, B. C. (2007). The dependency paradox in close relationships: Accepting dependence promotes independence. *Journal of Personality* and Social Psychology, 92(2), 268–285. https://doi.org/10.1037/0022-3514.92.2.268
- Feeney, B. C., & Cassidy, J. (2003). Reconstructive memory related to adolescent-parent conflict interactions: The influence of attachmentrelated representations on immediate perceptions and changes in perceptions over time. *Journal of Personality and Social Psychology*, 85(5), 945–955. https://doi.org/10.1037/0022-3514.85.5.945
- Fisher, L., Gudmundsdottir, M., Gilliss, C., Skaff, M., Mullan, J., Kanter, R., & Chesla, C. (2000). Resolving disease management problems in European-American and Latino couples with type 2 diabetes: The

effects of ethnicity and patient gender. *Family Process*, *39*(4), 403–416. https://doi.org/10.1111/j.1545-5300.2000.39402.x

- Friedlander, M. L., Lee, M., & Escudero, V. (2019). What we do and do not know about the nature and analysis of couple interaction. *Couple and Family Psychology: Research and Practice*, 8(1), 24–44. https://doi.org/ 10.1037/cfp0000114
- Gaines, S. O., Marelich, W. D., Bledsoe, K. L., Steers, W. N., Henderson, M. C., Granrose, C. S., Barájas, L., Hicks, D., Lyde, M., Takahashi, Y., Yum, N., Ríos, D. I., García, B. F., Farris, K. R., & Page, M. S. (1997). Links between race/ethnicity and cultural values as mediated by racial/ ethnic identity and moderated by gender. *Journal of Personality and Social Psychology*, 72(6), 1460–1476. https://doi.org/10.1037/0022-3514.72.6.1460
- Helgeson, V. S., Naqvi, J. B., Seltman, H. J., Vaughn, A. K., Korytkowski, M. T., Hausmann, L. R. M., & Gary-Webb, T. L. (2019). Links of communal coping to relationship and psychological health in type 2 diabetes: Actor-partner interdependence models involving role, sex, and race. *Annals of Behavioral Medicine*. Advance online publication. https://doi.org/10.1093/abm/kaz052
- Hunter, C. M. (2016). Understanding diabetes and the role of psychology in its prevention and treatment. *American Psychologist*, 71(7), 515–525. https://doi.org/10.1037/a0040344
- Karney, B. R. (2021). Socioeconomic status and intimate relationships. Annual Review of Psychology, 72(2), 391–414.
- Kiecolt-Glaser, J. K., Loving, T. J., Stowell, J. R., Malarkey, W. B., Lemeshow, S., Dickinson, S. L., & Glaser, R. (2005). Hostile marital interactions, proinflammatory cytokine production, and wound healing. *Archives of General Psychiatry*, 62(12), 1377–1384. https://doi.org/10 .1001/archpsyc.62.12.1377
- Kochman, T. (1981). Black and white styles in conflict. University of Chicago Press.
- Lavner, J. A., Karney, B. R., & Bradbury, T. N. (2016). Does couples' communication predict marital satisfaction, or does marital satisfaction predict communication? *Journal of Marriage and Family*, 78(3), 680– 694. https://doi.org/10.1111/jomf.12301
- Lincoln, K. D., Chatters, L. M., & Taylor, R. J. (2003). Psychological distress among black and white Americans: Differential effects of social support, negative interaction and personal control. *Journal of Health and Social Behavior*, 44(3), 390–407. https://doi.org/10.2307/1519786
- Morin, R. T., & Midlarsky, E. (2016). Social support, mastery, and psychological distress in black and white older adults. *The International Journal of Aging & Human Development*, 82(2–3), 209–228. https://doi.org/10.1177/0091415015627161
- Naranjo, D., Hessler, D. M., Deol, R., & Chesla, C. A. (2012). Health and psychosocial outcomes in U.S. adult patients with diabetes from diverse ethnicities. *Current Diabetes Reports*, 12(6), 729–738. https://doi.org/10 .1007/s11892-012-0319-y
- National Center for Health Statistics. (2016). *Health, United States, 2015: With special feature on racial and ethnic health disparities.*
- Oggins, J., Veroff, J., & Leber, D. (1993). Perceptions of marital interaction among Black and White newlyweds. *Journal of Personality and Social Psychology*, 65(3), 494–511. https://doi.org/10.1037/0022-3514 .65.3.494
- Orbuch, T. L., Veroff, J., & Holmberg, D. (1993). Becoming a married couple: The emergence of meaning in the first years of marriage. *Journal* of Marriage and the Family, 55(4), 815. https://doi.org/10.2307/352764
- Overall, N. C., & McNulty, J. K. (2017). What type of communication during conflict is beneficial for intimate relationships? *Current Opinion in Psychology*, 13, 1–5. https://doi.org/10.1016/j.copsyc.2016.03.002
- Porter, L. S., Keefe, F. J., Baucom, D. H., Hurwitz, H., Moser, B., Patterson, E., & Kim, H. J. (2012). Partner-assisted emotional disclosure for patients

with GI cancer: 8-week follow-up and processes associated with change. *Supportive Care in Cancer*, 20(8), 1755–1762. https://doi.org/10.1007/s00520-011-1272-z

- Reblin, M., Otto, A. K., Ketcher, D., Vadaparampil, S. T., Ellington, L., & Heyman, R. E. (2020). In-home conversations of couples with advanced cancer: Support has its costs. *Psycho-Oncology*, 29(8), 1280–1287. https:// doi.org/10.1002/pon.5416
- Rehman, U. S., & Holtzworth-Munroe, A. (2007). A cross-cultural examination of the relation of marital communication behavior to marital satisfaction. *Journal of Family Psychology*, 21(4), 759–763. https:// doi.org/10.1037/0893-3200.21.4.759
- Robbins, M. L., Karan, A., López, A. M., & Weihs, K. L. (2018). Naturalistically observing non-cancer conversations among couples coping with breast cancer. *Psycho-Oncology*, 27(9), 2206–2213. https://doi.org/10 .1002/pon.4797
- Rodriguez, A. J., & Margolin, G. (2013). Wives' and Husbands' cortisol reactivity to proximal and distal dimensions of couple conflict. *Family Process*, 52(3), 555–569. https://doi.org/10.1111/famp.12037
- Rosland, A. M., Heisler, M., & Piette, J. D. (2012). The impact of family behaviors and communication patterns on chronic illness outcomes: A systematic review. *Journal of Behavioral Medicine*, 35(2), 221–239. https://doi.org/10.1007/s10865-011-9354-4
- Ross, J. M., Karney, B. R., Nguyen, T. P., & Bradbury, T. N. (2019). Communication that is maladaptive for middle-class couples is adaptive for socioeconomically disadvantaged couples. *Journal of Personality and Social Psychology*, *116*(4), 582–597. https://doi.org/10.1037/ pspi0000158
- Sarkisian, N., & Gerstel, N. (2004). Kin support among blacks and whites: Race and family organization. *American Sociological Review*, 69, 812–837.
- Smith, T. W., Uchino, B. N., Berg, C. A., & Florsheim, P. (2012). Marital discord and coronary artery disease: A comparison of behaviorally-defined discrete groups. *Journal of Consulting and Clinical Psychology*, 80(1), 87–92. https://doi.org/10.1037/a0026561
- Strom, J. L., & Egede, L. E. (2012). The Impact of social support on outcomes in adult patients with type 2 diabetes: A systematic review. *Current Diabetes Reports*, 12(6), 769–781. https://doi.org/10.1007/ s11892-012-0317-0
- Usala, P. D., & Hertzog, C. (1989). Measurement of affective states in adults: Evaluation of an adjective rating scale instrument. *Research on Aging*, *11*(4), 403–426.
- Van Vleet, M., Helgeson, V. S., Seltman, H. J., Korytkowski, M. T., & Hausmann, L. R. M. (2019). An examination of the communal coping process in recently diagnosed diabetes. *Journal of Social and Personal Relationships*, 36(4), 1297–1316. https://doi.org/10.1177/ 0265407518761226
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070. https:// doi.org/10.1037/0022-3514.54.6.1063
- Williams, D. R., Mohammed, S. A., Leavell, J., & Collins, C. (2010). Race, socioeconomic status and health: Complexities, ongoing challenges and research opportunities. *Annals of the New York Academy of Sciences*, 1186(1), 69–101. https://doi.org/10.1038/jid.2014.371
- Williamson, H. C., Ju, X., Bradbury, T. N., Karney, B. R., Fang, X., & Liu, X. (2012). Communication behavior and relationship satisfaction among American and Chinese newlywed couples. *Journal of Family Psychology*, 26(3), 308–315. https://doi.org/10.1037/a0027752

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