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Confirmation, Disconfirmation, and Communal Coping for Joint Physical Activity in Romantic Dyads

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ABSTRACT

Most people in the United States do not engage in sufficient physical activity (PA). However, certain communication behaviors from romantic partners can motivate PA. Research indicates that confirming communication and communal coping (CC) in romantic relationships can increase PA efforts, but less research has examined the role of explicitly disconfirming communication or relationships between confirmation, disconfirmation, and CC on PA outcomes. We examined models in which shared PA appraisals mediate relationships between (a) confirmation and (b) disconfirmation and joint PA behavior in heterosexual, romantic dyads. Sex differences in actor and partner effects were also considered. Partners ($N = 144$) in 72 dyads completed assessments of key constructs. Results indicated that shared PA appraisals were critical in the confirmation model, mediating relationships between perceptions of confirmation and reports of joint PA. Unexpectedly, both partners' reports of partner disconfirmation were positively associated with their partners' reports of joint PA. Only one statistically significant sex difference emerged. Theoretical and pragmatic implications are discussed.

Physical activity (PA) offers a multitude of benefits, including reducing the risk of disease such as Type 2 diabetes, strengthening bones and muscles, and benefitting brain health (Centers for Disease Control and Prevention [CDC], 2021). However, nearly 80% of adults in the United States (U.S.) fail to meet PA guidelines (US Department of Health and Human Services [USDHHS], 2019). Messages from romantic partners play an important role in the enactment and maintenance of behavior change for better health, including increasing PA (e.g., Dailey et al., 2010; Helgeson et al., 2019; Ramos et al., 2020), and around 60% of American adults have a partner who can deliver such messages (Horowitz et al., 2019). Although friends and other family members may encourage one another to engage in PA (e.g., Darlow & Xu, 2011), romantic partners are unparalleled in their interdependence and potential for influence (Burke & Segrin, 2014). Given that most U.S. adults do not meet PA guidelines, romantic partners often *both* need to increase PA. Perceptions of relational climate (i.e., each partner's perception of the emotional tone created by the other's communication behavior over time; Dailey, 2006), likely play a role in whether partners view PA and other healthy behaviors as a challenge they are willing to take on together.

Paradoxically, though engaging in PA can reduce stress (USDHHS, 2019), the pressure to incorporate it into daily life can be stressful. Perceived barriers, such as cost, dislike for PA, fatigue, and the need to attend to family and work commitments can increase stress and prevent PA uptake (Salmon et al., 2003). Research indicates that one means by which couples can successfully increase their PA is to engage in PA together (i.e., joint PA). Though all PA is beneficial to well-being, joint PA offers unique benefits over solo PA such as increased time engaged in PA, greater adherence to fitness regimens over time, improved mood, and enhanced relational satisfaction (Berli et al., 2018; Sackett-Fox et al., 2021; Wallace et al., 1995).

Because joint PA has benefits above and beyond solo PA, it is pragmatically important to understand its predictors. The present paper integrates predictions from the extended theoretical model of communal coping (ETMCC, T. D. Afifi et al., 2020) and confirmation theory (e.g., Dailey, 2006) to understand why romantic couples may engage in joint PA. We first discuss research linking confirmation to PA, followed by a discussion of research on associations between communal coping (CC) and PA. We then forward and test two mediation models using actor-partner interdependence modeling.

Confirmation theory

Confirmation theory provides a useful lens from which couple conversations about physical activity can be understood and even leveraged for effective change. Confirmation theory is based on the idea that humans universally need to be valued and validated by close others such as their romantic partners (Buber et al., 1965; Dailey, 2006). When validation from romantic partners is lacking, people can struggle to grow, change, and develop their identities.

Confirmation is communicated at the relational level of communication, that is, what messages imply about the other person's identity – who they are in relation to their romantic partner – rather than at the literal content level of the message (Watzlawick & Beavin, 1967). More specifically, confirming

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messages communicate affection and approval while pushing others to see their potential and examine their goals and emotions. Disconfirming messages deny the other person's worthiness and experiences, causing them to think of themselves as less valuable. They discredit how someone feels, and they reject their ideas and communication (Sieburg & Larson, 1971). Over time, many confirming or disconfirming messages create a broader perception of a "relational climate" (Dailey, 2006). Confirming climates are marked by more frequent and intense warm and validating messages that encourage open discussion and self-reflection. Disconfirming climates are comprised of more frequent and intense rejecting or hostile messages. Importantly, because confirming and disconfirming climates reference each partners' perceptions of the other's behavior toward them, perceptions of the climate are unique to each partner. For example, a husband who sees his partner as providing continuous support and approval may perceive a confirming climate, whereas his wife may view her husband's behavior as invalidating and perceive a disconfirming climate.

Relational climates created through communication can affect partner health outcomes. Specifically, Dailey et al. (2016) state that "communication that fosters a climate of validation and encouragement should facilitate healthy diet and exercise behaviors, and thus, greater physical health" (p. 1482). A series of studies sheds light on this connection between confirmation in health behavior conversations and health-related outcomes. Dailey et al. (2010) conceptualize confirmation as messages combining acceptance (i.e., warm and validating messages, such as "You know I like you just as you are") and challenge (i.e., messages pushing the other to examine their behavior and improve, such as "You should be working out more consistently"). The researchers found that messages high in both acceptance and challenge (i.e., high confirmation) from romantic partners were associated with increased exercise self-efficacy. The researchers also asked participants to rate messages that varied by acceptance and challenge for effectiveness at motivating healthy behaviors. Messages that were high in both acceptance and challenge were rated most effective (compared to messages high in only acceptance or challenge or low in both). Among people actively trying to manage their weight in the Southwestern U.S., Dailey et al. (2016) found that meeting exercise goals was linked only to high levels of challenge, though consistency in providing high levels of acceptance also appeared beneficial.

The present study contributes to research on confirmation and PA in four ways. First, past studies employing confirmation theory to study topics related to PA in the communication field have primarily characterized confirmation in terms of (a) perceptions of acceptance and challenge in *discrete* messages about weight management (e.g., Dailey et al., 2010; Dailey, McCracken, et al., 2011) or (b) perceptions of acceptance and challenge in conversations about weight management over the course of the past month (e.g., Dailey et al., 2014; Dailey, Romo, et al., 2011). Less attention has been paid to each partner's perception of the *overall, global relational climate* created by their partner's confirming or disconfirming communication over a longer period. As such, we examine confirmation in terms of each partner's perceptions of how their partner generally communicates with them. Second, we focus on both confirming and disconfirming communication climates. In previous research, disconfirmation is often conceptualized as the absence of confirmation (acceptance and challenge) in a message (for an exception, see Dailey, 2008). For example, "I'm not sure what to tell you" is a sample low acceptance, low challenge message (Dailey et al., 2010). However, disconfirmation can range from ambiguous responses like these to more direct rejecting behaviors, such as belittlement (Ellis, 2002). We argue that the combination of low acceptance and low challenge in a message taps only a mild form of disconfirmation. Thus, we utilize a measure of disconfirmation that asks specific questions about a range of disconfirming behaviors, providing us with a greater ability to understand how perceptions of a disconfirming relational climate relates to PA. Third, we assess perceptions of partner confirmation and disconfirmation from both members of the dyad, a technique less common in the confirmation literature (for an exception, see Dailey, Romo, et al., 2011). Finally, we examine mechanisms by which confirmation and disconfirmation may be associated with healthy behavior. Specifically, the present study examines CC processes as one mechanism by which confirmation and disconfirmation may be associated with joint PA.

Communal coping and joint PA

Individuals who strive to meet PA guidelines can experience stress due to barriers to engaging in PA (e.g., lack of time or skill, dislike for PA; Salmon et al., 2003). Coping strategies for stressors such as the need to increase PA vary in many ways (Lazarus & Folkman, 1984); here, we focus on variation related to who is involved in coping efforts. Per the ETMCC, coping efforts can be scaled on two continuous dimensions: shared appraisals and joint action. Shared appraisals refer to individuals' perception that a stressor is jointly owned; that is, people perceive it as "ours" vs. "mine" and/or "yours" (Lyons et al., 2016). Some CC theories posit that shared appraisals elicit joint action, or collaboration with a partner to address a stressor (Helgeson et al., 2018). When an individual perceives high shared appraisals *and* joint action, CC occurs (T. D. Afifi et al., 2020). Conversely, individual coping is characterized by low shared appraisals and low joint action. In such a case, an individual effort to cope might be to join a gym on one's own without input or help from one's partner. Past research in other contexts has linked CC processes to positive outcomes such as smoking cessation and maintenance, better mental health, greater diabetes self-care, better relational quality, and uncertainty management (e.g., W. A. Afifi et al., 2012; Koehly et al., 2008; Lawrence & Schigelone, 2002; Rohrbaugh et al., 2012; Zajdel et al., 2018). However, CC has sometimes been associated with negative outcomes such as stress contagion (T. D. Afifi et al., 2015) and poorer mental health (T. D. Afifi et al., 2018).

Most relevant to the present research, CC has been examined in the context of its effects on health behaviors, including PA, for individuals diagnosed with diabetes. Basinger (2020) surveyed individuals about their diabetes-specific CC with family members and observed a positive, significant relationship between joint action (e.g., "I get support from my family

to handle my diabetes") and exercise days per week, though shared appraisals were not a significant predictor of exercise days. Johnson et al. (2013) collected data from married diabetic patients and their spouses, assessing general "common dyadic coping" in the relationship, not specific to diabetes. Common dyadic coping is similar to the joint action dimension of CC (e.g., "We try to cope with the problem together and search for solutions"). Johnson et al. found that common dyadic coping was associated with exercise adherence through spouse (but not self) diabetes efficacy (i.e., confidence in ability to adhere to diabetes treatment regimens). However, in a daily diary study of diabetic patients and their spouses, Zajdel et al. (2018) reported no significant relationships between common dyadic coping and PA.

The present study extends research examining CC in the context of PA in several ways. First, our stressor is unique in that, for the most part, *both* partners in our sample of romantic couples wished to increase their PA, as opposed to contexts in which one person's health is the primary focus (e.g., a diabetic patient and their partner). Second, we operationalize joint action in a specific manner: days spent engaged in moderate-to-vigorous PA together per week. Though all forms of PA are beneficial to health, we focus on moderate-to-vigorous PA because it is a cornerstone of the CDC's (2022) guidelines for health, and to be consistent with how other research has operationalized joint PA (e.g., Berli et al., 2018; Sackett-Fox et al., 2021). Research indicates that joint PA can have benefits above and beyond individual PA. For example, engaging in joint PA with one's romantic partner has been demonstrated to increase adherence to PA routines (Wallace et al., 1995), which is beneficial because people often struggle to maintain sufficient PA levels (Lachman et al., 2018). People who engage in joint PA with their romantic partners also report more total daily minutes of PA than those who do not engage in joint PA with their partners (Berli et al., 2018). Furthermore, research indicates that the benefits of joint PA are not limited to duration and maintenance of PA. In a study of young couples, partners experienced higher positive affect during exercise, higher daily positive affect, and greater relational satisfaction on days they exercised together vs. alone (Sackett-Fox et al., 2021). While the physical and mental health benefits of PA are clear (CDC, 2021), the heightened health benefits and the additional relational benefits of engaging in PA as a dyad are notable.

According to the ETMCC, thinking of health challenges, including the desire to engage in more PA, as a shared problem to confront should be associated with greater joint action, such as days engaged in PA together per week. Therefore, our study examines the association between shared appraisals and joint PA. Relationships between shared PA appraisals and joint PA are likely to exist for one's own reports of shared PA appraisals and one's partner's reports of shared PA appraisals. In other words, reported shared PA appraisals by each member of a couple are likely to be associated with the other's reports of days engaged in PA together. Specifically, we predict that:

H1: Shared PA appraisals (both one's own and one's partner's) will be positively associated with days engaged in joint PA (both one's own and one's partner's reports).

Confirmation, disconfirmation, and CC

Another goal of the present study is to integrate the confirmation and CC literatures to provide a more comprehensive understanding of how both processes influence PA outcomes in romantic couples. The ETMCC posits that multiple factors may predict and/or moderate CC processes, including relational quality, culture, nature of the stressor, and communication quality (T. D. Afifi et al., 2020). We focus on communication quality in the present study, which can refer to various characteristics of communication (T. D. Afifi et al., 2020). For example, norms of openness (Romo, 2015) and levels of conflict (T. D. Afifi et al., 2018) have been found to influence people's ability to engage in CC and/or its effectiveness.

We propose that perceptions of partners' global relational confirmation and disconfirmation may be characterized as forms of communication quality in the ETMCC, as confirming communication is high in quality (e.g., warm, affirming), whereas disconfirming communication is low in quality (e.g., hurtful, cold, disrespectful). Confirming communication that emphasizes the value and worth of another along with warmth and love is likely linked to perceptions of facing a problem together. That is, those who perceive their partner as warm and accepting will be more likely to report viewing increasing PA as a joint effort or joint problem to be solved. The Relational-Cultural Coping Model (Kayser et al., 2007) provides evidence of this, stating that relational qualities such as mutuality (i.e., bidirectional expression of feelings and thoughts including empathy, engagement, and empowerment; Genero et al., 1992), awareness, and authenticity can set the stage for how stressors or challenges are appraised as dyadic or individual. Kayser and Acquati (2019) found that the higher the reported mutuality between breast cancer patients and their caregivers, the more likely they were to report common dyadic coping (significant partner and actor associations). On the other hand, perceiving a climate of disconfirmation from one's partner should be negatively associated with shared PA appraisals; it is belittling and stymies the open communication that facilitates viewing a problem as one to be faced together. Thus, we predict that:

H2: Confirmation (both one's own and one's partner's perceptions) will be positively associated with shared PA appraisals (both one's own and one's partner's).

H3: Disconfirmation (both one's own and one's partner's perceptions) will be negatively associated with shared PA appraisals (both one's own and one's partner's).

The ETMCC (T. D. Afifi et al., 2020) posits that factors such as communication quality influence CC processes. Though the ETMCC does not explicitly state that shared appraisals are antecedent to joint action, other communal coping literature has made this claim explicit (see Helgeson et al., 2018). Thus, we posit that shared appraisals may mediate the association between communication quality and joint action. Based on the logic delineated above, and

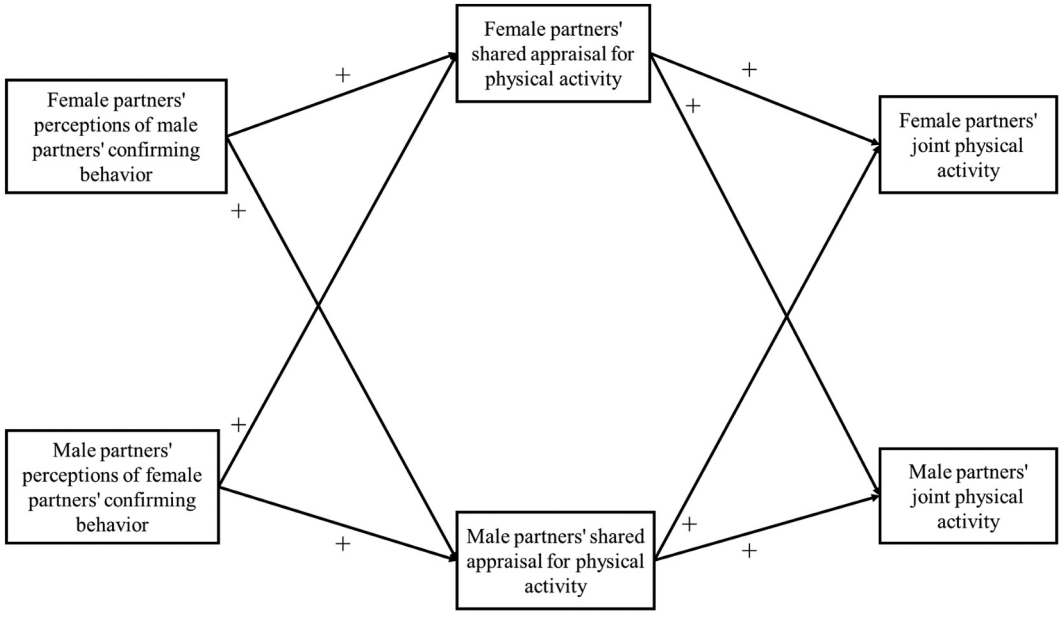

Figure 1. Hypothesized model for confirming behavior. Depicts both actor and partner associations hypothesized.

consistent with the ETMCC and other communal coping literature (e.g., Helgeson et al., 2018; Lyons et al., 2016), relational climates (here, in the form of perceptions of one's partner's confirmation and disconfirmation) are likely to set the stage for shared PA appraisals, which facilitate couples taking joint action such as engaging in PA together. We thus predict that shared appraisals for PA will mediate the relationships between confirmation and joint PA and between disconfirmation and joint PA (see Figures 1 and 2).

H4: Shared PA appraisals (both one's own and one's partner's) will mediate positive relationships between confirmation (both one's own and one's partner's perceptions) and joint PA (both one's own and one's partner's reports).

H5: Shared PA appraisals (both one's own and one's partner's) will mediate negative relationships between disconfirmation (both one's own and one's partner's perceptions) and joint PA (both one's own and one's partner's reports).

Moderation by sex

A final goal of this study is to examine potential sex differences in these processes in heterosexual romantic dyads. In the

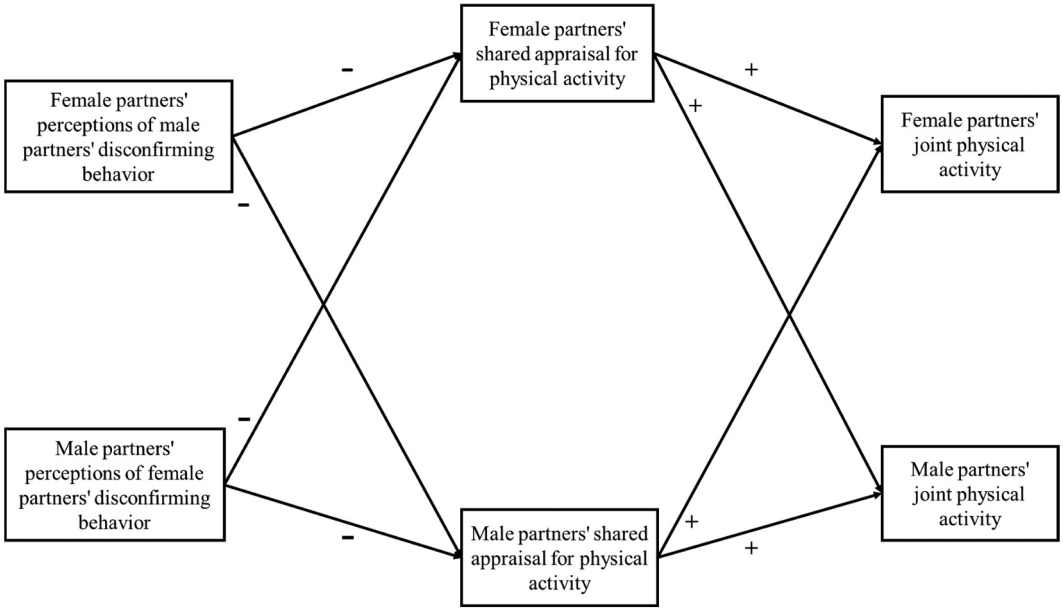

Figure 2. Hypothesized model for disconfirming behavior. Depicts both actor and partner associations hypothesized.

literature examining CC in romantic couples where one partner is diabetic, findings due to sex are mixed. For example, some research suggests that male patients engage in more communal coping than female patients, but that interactions between sex and CC produce mixed outcomes (e.g., Helgeson et al., 2017, 2022). Researchers have called for more attention to sex and gender differences in CC processes (Helgeson et al., 2022). Likewise, research has identified some sex differences in confirming and disconfirming communication in heterosexual couples. For example, Dailey, Romo, et al. (2011) found that female partners' reports of challenge were positively associated with male partners' reports of exercise, whereas male partners' reports of acceptance were positively associated with female partners' reports of exercise. To examine potential differences due to partner sex in heterosexual romantic dyads, we forward the following research question:

RQ: Do the (a) actor and/or (b) partner effects hypothesized in H1–5 differ for male and female partners in romantic couples?

Method

Procedures

As part of a broader study on couples and communication about diet and PA, participants in heterosexual, cohabitating romantic relationships ($N = 72$ dyads) were recruited from an online participant pool of around 8,600 community members near the researchers' university in the Midwestern United States. Heterosexual couples were recruited to examine the research question regarding sex differences in mixed-sex romantic dyads. In the present study, both partners in the dyad completed a 20-minute online survey assessing demographic and relationship information as well as PA behaviors. Dyads were compensated with a $25 Amazon gift card for completion of both surveys. All phases of the study were approved by the researchers' Institutional Review Board.

Participants

Requirements for participation for both individuals in the dyad included the following criteria: (a) must be 25–65 years of age; (b) must be cohabitating with their heterosexual romantic partner; and (c) must not be cognitively impaired, pregnant, or have been diagnosed with cancer. At least one member of the dyad needed to indicate a desire to increase moderate-to-vigorous intensity PA in the next month. Nearly all partners (90%) met this criterion as well.[1]

Participants ($n = 144$) were on average 37.59 years of age ($SD = 9.09$; female partners: $M = 36.85$, $SD = 9.09$; male partners: $M = 38.33$, $SD = 9.53$). Most (female partners: 72.6%; male partners: 83.6%) identified as White; 15.1% of female partners and 11% of male partners identified as Asian American/Pacific Islander; 4.1% of female partners and 2.7% of male partners identified as Black; 2.7% of female partners and 1.4% of male partners identified as Arab American; no female partners identified as indigenous and 1.4% of male partners identified as indigenous; 4.1% of both female partners and male partners identified with a race not listed, and 1.4% of female partners and no male partners declined to report their race. In addition, 8.2% of female partners and 9.6% of male partners reported they were Hispanic/Latinx. Average relationship length reported by participants was, for female partners: 11.24 years ($SD = 8.90$), and for male partners: 10.85 ($SD = 9.02$). Average number of children reported by both dyad members was 2.07 ($SD = 1.18$). Power analysis using Ledermann et al.'s (2022) APIMeM R code indicated that our current sample size was sufficient to detect large effect sizes (given power =.80) for all effects except direct actor and partner effects of confirmation/disconfirmation on joint PA (which are not predicted paths in our models) and total effects of confirmation/disconfirmation on joint PA. This indicates our sample size was sufficient to detect nearly all large effects in our MEDYAD models.

Measures

Confirmation and disconfirmation

In the present study, global partner confirmation and disconfirmation (i.e., nonspecific to PA) were measured using a 27-item instrument adapted from Ellis's (2002) confirmation scale, using the following stem: "Indicate how frequently your partner engages in each of the behaviors below." Response options ranged from 1 = *never* to 7 = *always*. Twelve items assessed confirmation (e.g., "Makes statements that communicate to me that I am a unique, valuable human being") and fifteen items assessed disconfirmation (e.g., "Belittles me").

Shared PA appraisals

Shared PA appraisals were measured using a 2-item instrument adapted from items utilized by Zajdel et al. (2018). The prompt for both items was "I consider my desire to make changes to my physical activity levels to be," with one response option ranging from 1, "My responsibility only," to 7, "A shared responsibility between me and my partner," and the other response option ranging from 1, "My problem only," to 7,"A shared problem between me and my partner" (female partners: $M = 3.90$, $SD = 2.19$, $r = .82$; male partners: $M = 3.45$, $SD = 2.15$, $r = .82$).

Joint PA days

Participants reported the number of days in a typical week they engaged in moderate-to-vigorous intensity PA with their partner using a drop-down menu with response options ranging from 0 to 7 days in the week (female partners: $M = 2.08$, $SD = 1.34$; male partners: $M = 2.27$, $SD = 1.73$). The CDC's definitions of moderate and vigorous PA were provided to participants.

Results

Confirmatory factor analyses

Confirmatory factor analyses (CFAs) were performed on the two scales with sufficient items: confirmation and disconfirmation. The hypothesized confirmation model fit was poor ($\chi 2/df = 2.\ 27$, $CFI = 0.94$, $RMSEA = 0.09$) and two items were dropped. Results of a CFA of the trimmed measure revealed a parsimonious and superior model fit ($\chi 2/df = 2.01$, $CFI = 0.97$, $RMSEA = 0.08$) (Cole, 1987), and the difference in the χ^2 statistic for the hypothesized and final configural and invariance models was statistically significant at an alpha-level of <.001, χ^2 diff (19) = 51.85. Thus, ten items assessed confirmation (e.g., "Gives me undivided attention when engaged in private conversations;" female partners: $M = 5.14$, $SD = 1.15$, $\alpha = .95$; male partners: $M = 5.37$, $SD = 0.90$, $\alpha = .92$).

A CFA for the disconfirmation scale was also conducted. A unidimensional model was a poor fit to the data ($\chi 2/df = 2.77$, $CFI = 0.89$, $RMSEA = 0.11$). Thus, we followed Cissna and Sieburg's (1981) conceptualization of three underlying factors that constitute disconfirmation: indifference (i.e., denying the existence of receiver); imperviousness (i.e., lack of understanding/obfuscation of perspective); and disqualification (i.e., rejecting the receiver's personhood). Following exploratory factor analysis, a CFA was conducted with items loaded onto one of the three subdimensions. Three items were dropped to improve fit. Ultimately, twelve items assessed disconfirmation, with three items loading onto the indifference subdimension (e.g., "ignores me while in the same room"); five onto the impervious subdimension (e.g., "interrupts me during conversations"); and four onto the disqualification subdimension (e.g., "criticizes my feelings when I express them"). Results of a final, second-order CFA revealed a parsimonious and superior model fit with the data ($\chi 2/df = 1.91$, $CFI = 0.96$, $RMSEA = 0.07$; Cole, 1987), and the difference in the χ^2 statistic for the hypothesized and final configural and invariance models was statistically significant at an alpha-level of <.001, χ^2 diff (39) = 104.91. For MEDYAD analyses, the subdimension scores were averaged (female partners: $M = 2.44$, $SD = 1.11$, $\alpha = .96$; male partners: $M = 2.33$, $SD = 0.99$, $\alpha = .94$).

Descriptive statistics

Descriptive statistics and the correlation matrix between study variables are reported in Table 1. Male and female partners did not differ significantly in their reports of confirmation, disconfirmation, shared PA appraisals, or number of days engaged in joint PA.

Tests of hypotheses

The Actor-Partner Interdependence Model Extended to Mediation (APIMeM; Ledermann et al., 2011) is a way to estimate direct and indirect effects of an independent variable on a dependent variable in the APIM via a commonly-measured mediator. We used the MEDYAD macro in SPSS (Coutts et al., 2019) to conduct APIMeM analyses. MEDYAD is an ordinary least squares (OLS) regression-based approach to mediation analyses with distinguishable dyadic data. We present results from two MEDYAD models, one for each

Table 1. Correlations, means, and standard deviations for study variables.

	Mean	SD	1	2	3	4	5	6	7
Female partners									
1. Confirmation	5.11	1.18							
2. Disconfirmation	2.36	1.13	−.47**						
3. Shared Appraisals	3.90	2.15	.34**	−.03					
4. Joint PA	2.08	1.34	.36**	.18	.41**				
Male partners									
5. Confirmation	5.38	0.92	.37**	−.27*	.14	.10			
6. Disconfirmation	2.26	1.01	−.14	.61**	.15	.43**	−.52**		
7. Shared Appraisals	3.45	2.15	.34**	−.14	.53**	.34**	.35**	−.11	
8. Joint PA	2.27	1.73	.11	.34**	.40**	.63**	.12	.32*	.33**

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

Table 2. Direct effects of confirmation.

	Shared Appraisals			Joint PA		
Effect	Est.	SE	95% CI	Est.	SE	95% CI
Female partners' actor association						
Confirmation	0.61	0.22	**0.18–1.06**	0.29	0.14	**0.02–0.56**
Shared appraisals	-	-	-	0.16	0.08	−0.01–0.32
Female partners' partner association						
Confirmation	0.43	0.22	**0.01–0.86**	−0.11	0.18	−0.47–0.26
Shared appraisals	-	-	-	0.26	0.11	**0.05–0.48**
Male partners' actor association						
Confirmation	0.62	0.27	**0.08–1.16**	0.01	0.24	−0.48–0.48
Shared appraisals	-	-	-	0.14	0.11	−0.08–0.36
Male partners' partner association						
Confirmation	0.03	0.28	−0.53–0.58	−0.13	0.17	−0.47–0.21
Shared appraisals	-	-	-	0.09	0.08	−0.06–0.27

Bolded effects are statistically significant because the confidence interval does not contain 0. All estimates are unstandardized.
Abbreviations: Est., estimates; SE, standard error; CI, confidence interval.

Table 3. Direct effects of disconfirmation.

	Shared Appraisals			Joint PA		
Effect	Est.	SE	95% CI	Est.	SE	95% CI
Female partners' actor association						
Disconfirmation	−0.37	0.28	−0.92–0.19	−0.07	0.15	−0.37–0.22
Shared appraisals	-	-	-	0.11	0.07	−0.03–0.26
Female partners' partner association						
Disconfirmation	−0.19	0.28	−0.76–0.37	0.47	0.19	**0.09–0.86**
Shared appraisals	-	-	-	0.21	0.10	**0.02–0.40**
Male partners' actor association						
Disconfirmation	−0.10	0.32	−0.73–0.54	0.20	0.22	−0.24–0.64
Shared appraisals	-	-	-	0.20	0.10	**0.01–0.39**
Male partners' partner association						
Disconfirmation	0.57	0.31	−0.05–1.19	0.65	0.17	**0.32–0.98**
Shared appraisals	-	-	-	0.18	.07	**0.04–0.33**

Bolded effects are statistically significant because the confidence interval does not contain 0. All estimates are unstandardized.
Abbreviations: Est., estimates; SE, standard error; CI, confidence interval.

independent variable (confirmation and disconfirmation), examining the indirect effect on days engaged in PA together through shared PA appraisals. Because the latter half of the model (shared PA appraisal → joint PA days) is identical in both models, we will report each finding in the results and unpack any discrepancies in the discussion section. Direct effects of confirmation and disconfirmation are reported in Tables 2 and 3, respectively.

Confirmation model results

H1 predicted that shared appraisals (both one's own and one's partner's) would be positively associated with days engaged in joint PA (both one's own and one's partner's reports). In the confirmation model, female partners' shared PA appraisals exhibited a significant, positive association with male partners' reports of joint PA days. Female partners' reports of joint PA on their own reports of joint PA days did not reach traditional levels of statistical significance ($p = .053$). Male partners' shared PA appraisals were not significantly associated with their own nor their partner's joint PA reports. H1 was partially supported.

H2 predicted that perceptions of partner confirmation would be associated with both one's own and one's partner's shared PA appraisals. Consistent with H2, female partners' and male partners' reports of partner confirmation were associated with their own shared PA appraisals such that greater partner confirmation was associated with greater shared PA appraisals. The relationship between female partners' perceptions of partner confirmation and male partners' shared PA appraisals did not reach traditional levels of statistical significance ($p = .08$). Neither partner association of partner confirmation on shared PA appraisals was statistically significant, providing only partial support for H2. In addition, there was a positive, direct association between female partners' perceptions of partner confirmation and their reports of joint PA days.

Table 4 and Figure 3 report results of the tests of indirect effects of confirmation on joint PA days through its associations with shared PA appraisals. Examining the indirect association of confirmation with joint PA days through shared PA appraisals (H4) revealed two statistically significant indirect associations. Female partners' reports of partner confirmation were associated with both their own and their partners' reports of joint PA days through female partners' shared PA appraisals. No other indirect effects were significant. Thus, H4 was partially supported.

Disconfirmation model results

In the disconfirmation model, H1 was mostly supported. Female partners' shared PA appraisals exhibited a significant, positive association with male partners' reports of joint PA

Table 4. Total and indirect effects of confirmation.

Effect	*Est.*	SE	95% CI
Female partners' actor association			
Total effect (Female Partners' Conf →Female Partners' Joint PA)	0.43	0.14	**0.15–0.70**
Female Partners' Conf →Female Partners' Shared Appraisal → Female Partners' Joint PA	0.09	0.06	**0.01 – 0.22**
Female partners' partner association			
Female Partners' Conf →Male Partners' Shared Appraisal → Female Partners' Joint PA	0.04	0.04	−0.01–0.14
Total effect (Female Partners' Conf →Male Partners' Joint PA)	0.11	0.19	−0.26–0.49
Female Partners' Conf → Female Partners' Shared Appraisal → Male Partners' Joint PA	0.16	0.09	**0.02–0.37**
Female Partners' Conf → Male Partners' Shared Appraisal → Male Partners' Joint PA	0.05	0.06	−0.03–0.21
Male partners' actor association			
Total effect (Male Partners' Conf → Male Partners' Joint PA)	0.16	0.24	−0.31–0.64
Male Partners' Conf → Male Partners' Shared Appraisal → Male Partners' Joint PA	0.08	0.09	−0.04–0.32
Male partners' partner association			
Male Partners' Conf → Female Partners' Shared Appraisal → Male Partners' Joint PA	0.01	0.08	−0.14–0.18
Total effect (Male Partners' Conf → Female Partners' Joint PA)	−0.06	0.17	−0.41–0.28
Male Partners' Conf → Female Partners' Shared Appraisal → Female Partners' Joint PA	0.01	0.05	−0.08–0.11
Male Partners' Conf → Male Partners' Shared Appraisal → Female Partners' Joint PA	0.06	0.06	−0.01–0.21

Bolded effects are statistically significant because the confidence interval does not contain 0. All estimates are unstandardized.
Abbreviations: Conf, confirmation; Est., estimates; SE, standard error; CI, confidence interval.

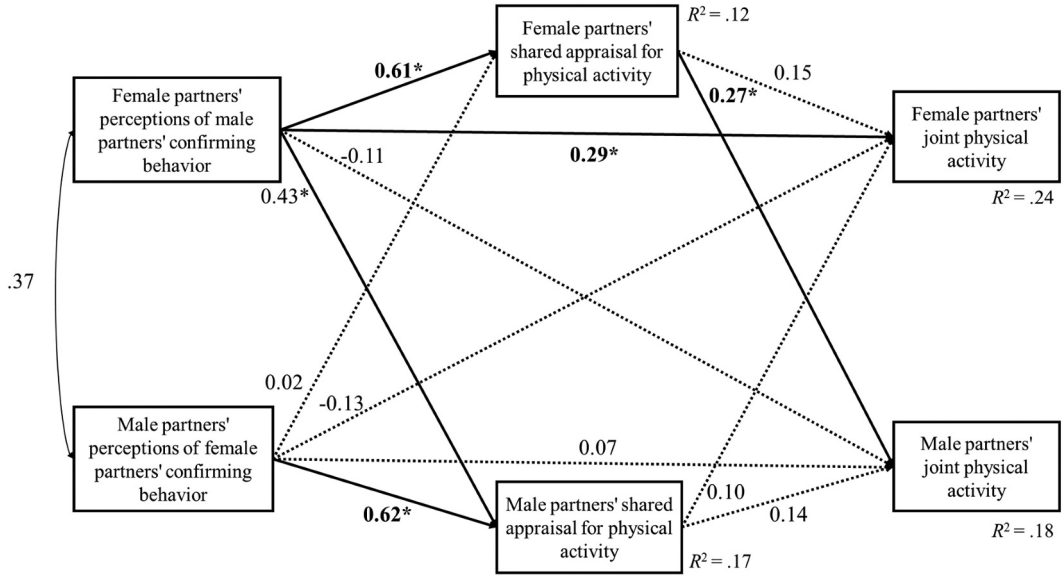

Figure 3. Results for hypothesized model for confirming behavior. Depicts both actor and partner associations hypothesized. Dashed lines indicate a nonsignificant relationship. *Note*. All coefficients reported are unstandardized. Bi-directional arrow between female partners' perceptions of male partners' confirming behavior and male partners' perceptions of confirming behavior indicates their Pearson's correlation. *$p < .05$.

days but not their own. Male partners' shared PA appraisals were significantly, positively associated with both their own and their female partners' reports of joint PA days.

H3 predicted that partner disconfirmation (both one's own and one's partner's perceptions) would be negatively associated with shared PA appraisals (both one's own and one's partner's). This hypothesis was not supported. Instead, partner disconfirmation was directly associated with joint PA. Male partners' reports of partner disconfirmation had a significant, positive association with female partners' reports of joint PA days, and female partners' disconfirmation was also significantly, positively associated with male partners' reports of joint PA days.

Table 5 and Figure 4 report results of tests of the indirect effects of partner disconfirmation on joint PA days through its effects on shared PA appraisals. H5 predicted that shared PA appraisals (both one's own and one's partner's) would mediate negative relationships between partner disconfirmation (both one's own and one's partner's perceptions) and joint PA (both one's own and one's partner's reports). This hypothesis was not supported; no significant indirect effects were observed for partner disconfirmation.

Sex differences

Tests for sex differences for all actor by actor, partner by partner, and actor by partner direct effects in the models were conducted using the R package dyadr (https://github.com/RandiLGarcia/dyadr). Results of these tests are reported in Tables 6 and 7. Only one significant sex difference emerged: female partners' reports of joint PA were better predicted by their partners' reports of disconfirmation ($B = 0.62$) than by their own ($B = -.07$). That is, male partners' perceptions that female partners are disconfirming is a better predictor of female partners' reports of joint PA than female partners'

Table 5. Total and indirect effects of disconfirmation.

Effect	*Est.*	SE	95% CI
Female partners' actor association			
Total effect (Female Partners' Dis →Female Partners' Joint PA)	−0.14	0.16	−0.47–0.17
Female Partners' Dis →Female Partners' Shared Appraisal → Female Partners' Joint PA	−0.04	0.05	−0.18–0.02
Female partners' partner association			
Female Partners' Dis →Male Partners' Shared Appraisal → Female Partners' Joint PA	−0.03	0.06	−0.17–0.07
Total effect (Female Partners' Dis →Male Partners' Joint PA)	0.36	0.21	−0.07–0.78
Female Partners' Dis → Female Partners' Shared Appraisal → Male Partners' Joint PA	−0.08	0.07	−0.25–0.04
Female Partners' Dis → Male Partners' Shared Appraisal → Male Partners' Joint PA	−0.04	0.07	−0.21–0.08
Male partners' actor association			
Total effect (Male Partners' Dis → Male Partners' Joint PA)	0.29	0.24	−0.18–0.77
Male Partners' Dis → Male Partners' Shared Appraisal → Male Partners' Joint PA	−0.02	0.09	−0.22–0.14
Male partners' partner association			
Male Partners' Dis → Female Partners' Shared Appraisal → Male Partners' Joint PA	0.12	0.08	−0.01–0.31
Total effect (Male Partners' Dis → Female Partners' Joint PA)	0.67	0.18	**0.31–1.03**
Male Partners' Dis → Female Partners' Shared Appraisal → Female Partners' Joint PA	0.06	0.06	−0.03–0.19
Male Partners' Dis → Male Partners' Shared Appraisal → Female Partners' Joint PA	−0.02	0.07	−0.17–0.12

All estimates are unstandardized.
Abbreviations: Dis, disconfirmation; Est., estimates; SE, standard error; CI, confidence interval.

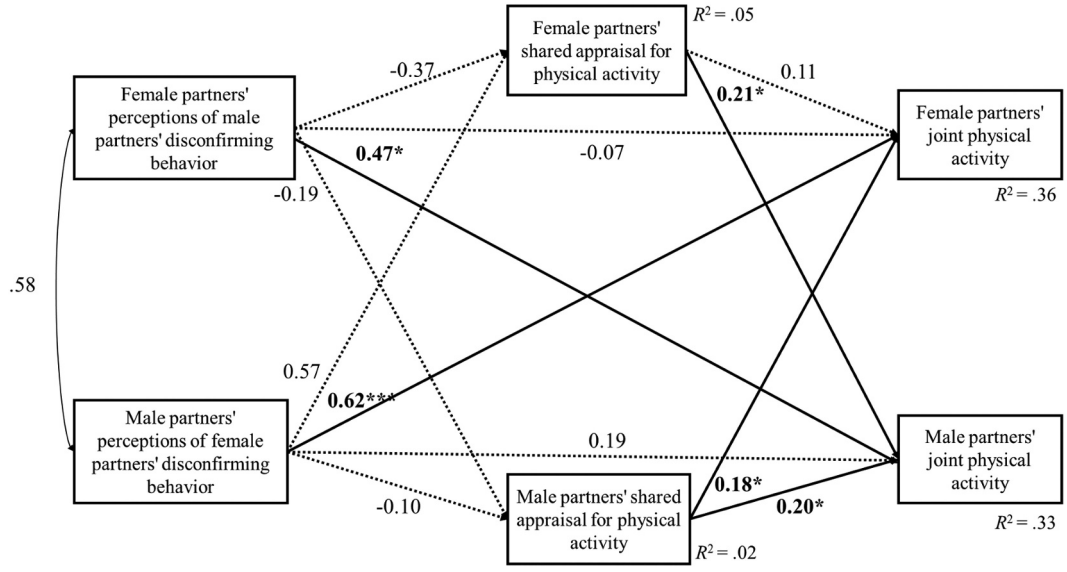

Figure 4. Results for hypothesized model for disconfirming behavior. Depicts both actor and partner associations hypothesized. Dashed lines indicate a nonsignificant relationship. *Note*. All coefficients reported are unstandardized. Bi-directional arrow between female partners' perceptions of male partners' disconfirming behavior and male partners' perceptions of disconfirming behavior indicates their Pearson's correlation. *$p < .05$, ***$p < .001$.

Table 6. Contrast test results for confirmation.

	Shared Appraisals			Joint PA		
Effect Contrast	Est.	SE	*p*-value	Est.	SE	*p*-value
Female partners' actor vs Male partners' actor						
Confirmation	−0.01	0.38	.99	0.30	0.30	.45
Shared appraisals	-	-	-	0.02	0.15	.90
Female partners' actor vs Male partners' partner						
Confirmation	0.59	0.42	.16	0.42	0.25	.10
Shared appraisals	-	-	-	0.06	0.14	.69
Female partners' partner vs Male partners' actor						
Confirmation	0.18	0.40	.64	0.18	0.33	.59
Shared appraisals	-	-	-	−0.13	0.19	.49
Male partners' partner vs Female partners' partner						
Confirmation	−0.41	0.38	.28	−0.02	0.27	.93
Shared appraisals	-	-	-	−0.17	0.15	.27

Table depicts results of contrasts tests that tested sex effects for the confirmation model. Independent variables effects are depicted in the rows. Dependent variables are depicted in the columns.
All estimates are unstandardized.
Abbreviations: Est., estimates; SE, standard error; CI, confidence interval.

Table 7. Contrast test results for disconfirmation.

	Shared Appraisals			Joint PA		
Effect Contrast	Est.	SE	*p*-value	Est.	SE	*p*-value
Female partners' actor vs Male partners' actor						
Disconfirmation	−0.27	0.49	.58	−0.27	0.30	.37
Shared appraisals	-	-		−0.09	0.14	.53
Female partners' actor vs Male partners' partner						
Disconfirmation	−0.94	0.53	.08	**−0.69**	**0.28**	**.01**
Shared appraisals	-	-		−0.07	0.13	.59
Female partners' partner vs Male partners' actor						
Disconfirmation	0.09	0.54	.86	−0.27	0.37	.45
Shared appraisals	-	-		−0.01	0.17	.95
Male partners' partner vs Female partners' partner						
Disconfirmation	0.75	0.49	.12	0.15	0.29	.62
Shared appraisals	-	-	-	−0.03	0.14	.84

Table depicts results of contrasts tests that tested sex effects for the disconfirmation model. Independent variables effects are depicted in the rows. Dependent variables are depicted in the columns. All estimates are unstandardized. Bolded coefficients are significant.
Abbreviations: Est., estimates; SE, standard error; CI, confidence interval.

perceptions that male partners are disconfirming. Regarding indirect effects, results from the previously-reported MEDYAD models indicated no significant sex differences.

Discussion

The role of confirmation and disconfirmation in CC processes

Extant research demonstrates that discrete confirming messages and perceptions of acceptance and challenge in PA-related conversations over a month are associated with healthy PA-related behaviors (e.g., Dailey et al., 2010, 2014). Broadening these findings, we observed a significant, direct actor association between female partners' perceptions that her partner creates a *globally* confirming climate and joint PA. Identifying a link between global perceptions of partner confirmation and a behavioral outcome complements past research indicating that global confirmation is predictive of positive relational outcomes. For example, confirmation in the form of feeling understood by one's spouse is highly predictive of marital satisfaction (Weger, 2005). In parent-child relationships, perceptions of global partner confirmation are associated with open communication (Dailey, 2006). Our finding also extends knowledge about the role of communication quality in the ETMCC. In previous CC research, indicators of communication quality such as norms of openness (Romo, 2015) and levels of conflict (T. D. Afifi et al., 2018) have been shown to impact CC processes. Our study justifies adding perceptions of globally confirming climates to the corpus of indicators of communication quality in the ETMCC.

Past research has not typically considered potential mediators of the confirmation – PA behavior relationship. As such, mechanisms by which confirming climates lead to healthy behavior are unknown. Though not explicitly stated by the ETMCC, other theorizing about communal coping places shared appraisals as predictors of joint action (e.g., Helgeson et al., 2018). We integrated these predictions from the CC literature and confirmation theory to hypothesize that shared appraisals would mediate the association between perceptions of a globally-confirming climate and joint PA. Partial support for this hypothesis was indicated by significant indirect effects on both partners' reports of joint PA, flowing from female partners' reports of partner confirmation through female partners' shared PA appraisals. Thus, female partners' perceptions that their partner sets a confirming relational climate appear to be associated with her thinking about challenges like increasing PA as a couple-level challenge, as the ETMCC (T. D. Afifi et al., 2020) would predict. Female partners' perception that the need to increase PA is a shared issue was in turn associated with spending more time jointly tackling the challenge (in this case, engaging in PA together). Importantly, the significant indirect effects indicate that it is female partners' shared PA appraisals that link their perceptions that male partners set a globally confirming climate to increases in *both* partners' reports of joint PA. These findings further justify the inclusion of CC processes in understanding the role of partner confirmation on PA outcomes in romantic relationships.

Empirical evidence and theory (e.g., T. D. Afifi et al., 2020; Dailey et al., 2010) led us to predict that perceptions of partner disconfirmation would be negatively associated with shared PA appraisals. On the contrary, partner disconfirmation was not significantly associated with shared PA appraisals, but it *did* have significant direct partner associations with joint PA, such that individuals' reports of partner disconfirmation were *positively* associated with their partners' reports of joint PA (for both male partners and female partners). That is, the more disconfirming people believed their partners to be, the *more* joint PA their partners reported.

Why would a disconfirming climate lead to greater joint PA? The insignificant mediating effect of shared appraisals in the disconfirmation – joint PA link indicates that the shared appraisal component of the CC process does not explain this finding. Though we can only speculate, our findings may be explained by literature on social control. Social control, broadly, refers to behavior used for influence and can be positive or negative (e.g., Lewis & Rook, 1999). Confirmation is akin to positive social control (e.g., encouragement, support), which is generally associated with greater PA than negative social control (e.g., threats, criticism) (Craddock et al., 2015). Like confirmation and positive social control, disconfirmation can be used for influence, but it is more like negative social control (Dailey, 2019). Instead of the acknowledgment and encouragement that characterize confirmation, disconfirmation achieves its influence by conveying judgment and disapproval. Research indicates that though it is less effective than positive social control, negative social control is sometimes associated with positive PA behavior (e.g., Novak & Webster, 2011). However, negative social control can also produce negative emotions such as shame, guilt, and anger (Lewis & Butterfield, 2005; Lewis & Rook, 1999). Ultimately, negative social control can backfire and result in less PA (Craddock et al., 2015).

Consistent with the literature on social control, we found that negative behaviors (i.e., disconfirmation) can have desirable outcomes (i.e., increased joint PA). However, though we observed positive relationships between disconfirmation and joint PA in our cross-sectional data, it is possible that repeated exposures to disconfirmation over time could erode motivation or make joint PA less likely to occur, as physical activity paired with positive experiences tends to be more enduring (i.e., the role of attitudes toward physical activity are important in shaping future physical activity; Thompson et al., 2003). It is also possible that partner disconfirmation has unwanted outcomes not assessed in the present study, such as negative emotion and relational dissatisfaction (e.g., Lewis & Butterfield, 2005; Lewis & Rook, 1999; Schrodt & Ledbetter, 2012). In fact, the lack of significant associations between disconfirmation and shared appraisals suggests that disconfirmation's effects are not uniformly positive in this context, and the way that disconfirming climates produce healthy behavior does not stem from the CC process of shared appraisals. Therefore, other mediators of the partner disconfirmation – joint PA link, such as perceptions of social control, should be explored in future research.

The discrepancy between our findings for partner disconfirmation and previous work based in confirmation theory

may also be related to our conceptualization and measurement of partner disconfirmation. Most extant confirmation research by Dailey and colleagues (e.g., Dailey et al., 2010, 2016; Dailey, McCracken, et al., 2011) operationalizes disconfirmation in terms of discrete messages that are low on both acceptance and challenge dimensions (e.g., "I don't know what to say") or as perceptions of acceptance and challenge in context-specific conversations over a month (e.g., Dailey et al., 2014). The relational climate measure utilized in the present study captures similar types of behaviors included in extant literature in this context [e.g., "My partner gives ambiguous (unclear, vague) responses"]. However, it also assesses more severe forms of disconfirmation (e.g., "My partner belittles me;" "My partner engages in negative name-calling"). Perhaps, because our measure was sensitive to a wider range of disconfirming behaviors, we were able to identify unique associations between partner disconfirmation, shared PA appraisals, and joint action. It is also possible that because our data are cross-sectional, instead of (or in addition to) disconfirmation increasing joint PA, increased time spent engaging in PA together provides more opportunities for disconfirmation. Finally, it is important to note that although partner disconfirmation was associated with increased reports of joint PA, the average reported frequency of disconfirming behaviors was relatively low in our sample (female partners $M = 2.44$; male partners $M = 2.33$, on a scale ranging from 1 = *never* to 7 = *always*). Future research should consider the effects of more frequent partner disconfirmation.

Comparing the models for partner confirmation and disconfirmation illustrates that many of the significant associations that were present in the disconfirmation model were not significant in the confirmation model, such as from the mediator (shared PA appraisals) to joint PA. In the disconfirmation model, for male partners, actor and partner associations between shared appraisals and joint PA were significant and in the expected direction, and for female partners, partner associations were positive and significant. We expected to find these significant associations in both models, as they are predicted by the ETMCC (T. D. Afifi et al., 2020), but they were not robust in the confirmation model. The lack of significant relationships between shared PA appraisals and joint PA in the confirmation model may be due to the predictive power of partner confirmation. That is, it is possible that the variance in joint PA explained by partner confirmation may reduce the association between shared appraisals and joint PA. Overall, our set of findings bolsters our approach to measuring and examining both confirmation and disconfirmation, as the two models revealed different results.

Finally, our findings regarding the impact of globally confirming climates align with research from communication theories that identify global relational attributes as important in influencing outcomes for romantic partners (e.g., Relational Turbulence Theory, Solomon et al., 2016). It is possible that had we assessed context-specific confirmation behaviors over a discrete period as in past research in the physical activity context, we may have observed larger associations with shared appraisals and/or joint action. However, that we found significant effects of both confirmation and disconfirmation at the global level speaks to the importance of perceptions of global relational perceptions in driving couples' perceptions and actions. It is therefore possible that assessments of global confirmation and disconfirmation could be incorporated fruitfully in CC research focused on diabetes management, coping with natural disasters, and other contexts (e.g., W. A. Afifi et al., 2012; Helgeson et al., 2020).

Sex differences

A strength of the present study was its inclusion of dyadic data. Previous research points to the utility of dyadic data in testing CC theories as well as confirmation theory. For example, Dailey's (2006) parent-child dyadic data revealed that adolescents' confirming behavior is a better predictor of outcomes than parents' confirming behavior. In the present study, we focus on heterosexual romantic dyads. A large body of research indicates that in heterosexual relationships, female partners are more likely than male partners to exert social control over their partners' health, including their PA behaviors (e.g., Rook et al., 2011; Umberson et al., 2018). Research suggests that this is due to gender role norms and systems that promote female partners' responsibility for the health of others while emphasizing independence for male partners (Umberson et al., 2018). However, sex differences are inconsistent in the confirmation and CC literatures in the context of health behavior, and in both literatures, often no sex differences are apparent (e.g., Dailey, Romo, et al., 2011; Helgeson et al., 2017, 2022).

Through more statistically significant effects were evidenced for female partners as opposed to male partners in our models, subsequent analyses detected only one significant sex difference among all direct and indirect paths. In that case, male partners' perceptions that female partners were disconfirming was a better predictor of female partners' reports of joint PA than were female partners' perceptions that male partners were disconfirming. This is an interesting finding because ultimately, it indicates that the perspectives of both parties are important in shaping female partners' reports of joint PA. That is, it is male partners' perceptions that their female partner is disconfirming that is associated with female partners' increased reports of joint PA.

Situating this result in past research is difficult given mixed findings for sex differences. Some research indicates that female partners report engaging in more antisocial relationship maintenance behaviors than male partners (e.g., sarcasm, deception; Dainton & Stafford, 1993); however, the extent to which those behaviors are particularly beneficial for female partners is not known. Researchers conducting a meta-analysis of the social control and health literature observed that few studies separated findings by sex, such that they were unable to test for sex differences in positive and negative social control (Craddock et al., 2015). Future research should continue to unpack potential sex differences in partner confirmation/disconfirmation and CC, in the context of romantic partner conversations about PA and in other contexts.

It is possible that in the present study, the relative lack of sex differences is due to partners being on relatively equal footing, as nearly all wanted to change their PA behavior. Past confirmation and CC research in this area tends to focus on just one partner's health behavior (e.g., a diabetic patient and their spouse who does not have diabetes) (Basinger, 2020). Sex differences may be

less apparent when the "target" of CC shifts from the individual to the dyad. Finally, greater statistical power could detect sex differences not apparent here, and future research should increase sample sizes to examine such a possibility. However, the lack of significant sex differences in the present study suggests that any such differences are likely to be quite small.

Pragmatic implications

In terms of pragmatic implications for couples, our research suggests that behaving in a globally confirming way toward one's partner is associated with greater shared appraisals for PA, and in turn, shared appraisals for PA are associated with greater joint PA, which past research has shown to be more beneficial than solo PA in terms of maintaining PA regimens. Joint PA is also associated with greater positive affect and relational satisfaction (Berli et al., 2018; Sackett-Fox et al., 2021). Thus, if joint PA is a goal, then people who confirm their partners can facilitate joint PA via shared appraisals. Behaviors associated with a confirming climate are those that validate and encourage one's partner, such as active listening and allowing for expression of negative emotion.

Though our findings suggest that partner disconfirmation can lead to greater joint PA, we caution against advocating for its use for several reasons. Previous studies indicate that disconfirming behaviors can have negative outcomes not assessed here (e.g., negative affect, relational dissatisfaction) and in the long run may be counter-productive to goal attainment (Craddock et al., 2015; Lewis & Butterfield, 2005; Lewis & Rook, 1999). Furthermore, though partner disconfirmation did predict joint PA, it did not significantly predict shared PA appraisals, and research indicates that shared appraisals have beneficial outcomes in other health-related contexts (e.g., Rohrbaugh et al., 2012). Finally, because the data are cross-sectional, we cannot confirm causal order; as such, it is possible that joint PA increases partner disconfirmation due to other factors such as increased time spent together or increased stress associated with engaging in joint PA.

Limitations and future directions

A significant strength of this study was the inclusion of dyadic data, which are not always utilized despite calls to increase the use of dyadic data to best understand partner influence on health behaviors (see Umberson et al., 2018). Assessing both partners' points of view adds important pieces to the puzzle of increasing PA in couples via positive communication practices. Another strength is the integration of concepts and predictions from two widely-utilized theories in research on dyadic communication and PA: the ETMCC and confirmation theory.

Despite its strengths, several study limitations should be noted. First, without longitudinal data, we cannot determine causal order, and the predicted relationships are likely recursive. Per some CC theories (e.g., Helgeson et al., 2018), shared appraisals are hypothesized to prompt joint action, but the ETMCC theorizes the shared appraisal – joint PA link as bidirectional (T. D. Afifi et al., 2020). A next step in this line of research is to examine how couples navigate from shared appraisals to joint PA and vice versa. Efforts to use social control with partners vary considerably and may be more or less direct and more or less affirming (Craddock et al., 2015). Evidence suggests that partner control that is more direct and more affirming is more helpful (Dailey, 2019; Umberson et al., 2018). Therefore, examining correspondence between quantity and quality of efforts, especially from a CC perspective, may illuminate differences in relationships between shared appraisals and joint PA. To do this, future research could examine specific messages and behaviors that spring from perceptions of a shared problem. For example, a partner may think that the need to increase PA is a shared problem but engage in disconfirming behavior to try to ensure joint PA. In turn, these efforts could decrease their partners' appraisals of the problem as shared.

Another interesting future direction may be to examine the overall relational climate between partners. Extant research conceptualizes and operationalizes confirmation and disconfirmation in terms of each individual's perceptions of their partner's behavior; we followed suit in the present study. However, there may be a global, *shared* confirming or disconfirming relational climate that is a product of both partners' experiences. Measuring this climate might involve interviewing the couple as a pair or engaging in observational coding of couple behavior (e.g., Buehlman et al., 1992; Larrosa et al., 2009).

The present study included only heterosexual couples to facilitate the examination of sex differences in mixed-sex romantic dyads. Future research should include couples whose makeup varies in terms of factors such as biological sex and gender role identity. Diversifying relationship types and the gender identities of those in them may reveal other relational factors (e.g., power, stigmas, or biases) that better predict CC differences (Hammack et al., 2019). Our sample was also largely White and non-Hispanic, and race and ethnicity are known to be associated with PA behavior (Saffer et al., 2013). We limited the sample to those between 25 and 65 years of age; couples outside this range should be included in future research. Furthermore, the analyses were not sufficiently powered to test for some effects in the model, particularly direct associations between confirmation/disconfirmation and joint PA (though it should be noted that several significant associations between these variables were large enough to be detected despite the sample size).

For the most part, both members of the couple wanted to change their PA. Though this has been discussed as a potential strength of the study, it is also a potential limitation, as it may have negatively skewed their level of shared appraisals and joint PA. Future research should include more couples where only one person is facing the stressor of needing to increase PA, similar to CC work with couples with one partner facing an illness (e.g., Helgeson et al., 2020).

Finally, a limitation relates to examining joint PA as the sole indicator of joint action. This was a conscious choice, given joint PA's link to higher rates of overall PA and PA persistence as well as other positive personal and relational outcomes (Berli et al., 2018; Wallace et al., 1995). However, joint PA is just one facet of joint action in the PA context.

For some couples, engaging in joint PA is not feasible, such as when caretaking duties limit time available for joint PA or when PA interests and/or abilities diverge (e.g., one partner loves to run and the other hates it). Couples may engage in other joint actions that facilitate individuals' PA, such as creating opportunities for the other person to engage in solo PA, providing encouragement for PA efforts, or budgeting for PA equipment. Future research could examine a broader array of joint actions to better understand links between confirmation, disconfirmation, and CC.

Conclusion

This study sought to understand links between partner confirmation and disconfirmation, shared appraisals, and joint PA. Utilizing data from heterosexual romantic couples, we found support for many (but not all) hypothesized links between partner confirmation, shared appraisals, and joint PA. Results indicate that partner confirmation is linked to shared appraisals, and confirmation has indirect associations with joint PA through shared appraisals. Results of the partner disconfirmation model suggest that partner disconfirmation may be beneficial for joint PA, though future research is needed to explore potential, less positive outcomes of disconfirmation in this context. By combining these theoretical approaches, we were able to identify important contributions to CC processes (i.e., shared appraisals and joint action): relational climates of partner confirmation and disconfirmation.

Note

1. The 10% of partners who did not indicate wanting to change did not differ significantly from the 90% who indicated they wanted to change on any key study variable: confirmation, disconfirmation, shared PA appraisals, or joint action.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The data that support the findings of this study are available from the corresponding author, AJH, upon reasonable request.

References

Afifi, T. D., Afifi, W. A., Acevedo Callejas, M., Shahnazi, A., White, A., & Nimah, N. (2018). The functionality of CC in chronic uncertainty environments: The context of Palestinian refugees in Lebanon. *Health Communication*, *34*(13), 1585–1596. https://doi.org/10.1080/10410236.2018.1514682

Afifi, T. D., Basinger, E. D., & Kam, J. A. (2020). The extended theoretical model of communal coping: Understanding the properties and functionality of communal coping. *Journal of Communication*, *70*(3), 424–446. https://doi.org/10.1093/joc/jqaa006

Afifi, T. D., Granger, D. A., Joseph, A., Denes, A., & Aldeis, D. (2015). The influence of divorce and parents' communication skills on adolescents' and young adults' stress reactivity and recovery. *Communication Research*, *42*(7), 1009–1042. https://doi.org/10.1177/0093650213509665

Afifi, W. A., Felix, E. D., & Afifi, T. D. (2012). The impact of uncertainty and communal coping on mental health following natural disasters. *Anxiety, Stress & Coping*, *25*(3), 329–347. https://doi.org/10.1080/10615806.2011.603048

Basinger, E. D. (2020). Testing a dimensional versus a typological approach to the communal coping model in the context of Type 2 diabetes. *Health Communication*, *35*(5), 585–596. https://doi.org/10.1080/10410236.2019.1573297

Berli, C., Bolger, N., Shrout, P. E., Stadler, G., & Scholz, U. (2018). Interpersonal processes of couples' daily support for goal pursuit: The example of physical activity. *Personality & Social Psychology Bulletin*, *44*(3), 332–344. https://doi.org/10.1177/0146167217739264

Buber, M., Friedman, M. S., & Smith, R. G. (1965). *The knowledge of man: Selected essays*. Harper & Row.

Buehlman, K. T., Gottman, J. M., & Katz, L. F. (1992). How a couple views their past predicts their future: Predicting divorce from an oral history interview. *Journal of Family Psychology*, *5*(3–4), 295. https://doi.org/10.1037/0893-3200.5.3-4.295

Burke, T. J., & Segrin, C. (2014). Examining diet-and exercise-related communication in romantic relationships: Associations with health behaviors. *Health Communication*, *29*(9), 877–887. https://doi.org/10.1080/10410236.2013.811625

Centers for Disease Control and Prevention. (2021, November 1). *Benefits of physical activity*. https://www.cdc.gov/physicalactivity/basics/pa-health/index.html

Centers for Disease Control and Prevention. (2022, June 3). *Measuring physical activity intensity*. https://www.cdc.gov/physicalactivity/basics/measuring/index.html

Cissna, K. N., & Sieburg, E. (1981). Patterns of interactional confirmation and disconfirmation. In C. W. Mott & J. H. Weakland (Eds.), *Rigour and imagination: Essays from the legacy of Gregory Bateson* (pp. 253–282). Praeger.

Cole, D. A. (1987). Utility of confirmatory factor analysis in test validation research. *Journal of Consulting and Clinical Psychology*, *55*(4), 584–594. https://doi.org/10.1037/0022-006X.55.4.584

Coutts, J. J., Hayes, A. F., & Jiang, T. (2019). Easy statistical mediation analysis with distinguishable dyadic data. *Journal of Communication*, *69*(6), 612–649. https://doi.org/10.1093/joc/jqz034

Craddock, E., vanDellen, M. R., Novak, S. A., & Ranby, K. W. (2015). Influence in relationships: A meta-analysis on health-related social control. *Basic and Applied Social Psychology*, *37*(2), 118–130. https://doi.org/10.1080/01973533.2015.1011271

Dailey, R. M. (2006). Confirmation in parent–adolescent relationships and adolescent openness: Toward extending confirmation theory. *Communication Monographs*, *73*(4), 434–458. https://doi.org/10.1080/03637750601055432

Dailey, R. M. (2008). Assessing the contribution of nonverbal behaviors in displays of confirmation during parent-adolescent interactions: An actor-partner interdependence model. *Journal of Family Communication*, *8*(1), 62–91. https://doi.org/10.1080/15267430701573599

Dailey, R. M. (2019). Integrating strategies from three predominant theories regarding romantic partner support of weight loss. *Journal of Social and Personal Relationships*, *36*(10), 3009–3036. https://doi.org/10.1177/0265407518810528

Dailey, R. M., Crook, B., Glowacki, E., Prenger, E., & Winslow, A. A. (2016). Meeting weight management goals: The role of partner confirmation. *Health Communication*, *31*(12), 1482–1494. https://doi.org/10.1080/10410236.2015.1089398

Dailey, R. M., McCracken, A. A., & Romo, L. K. (2011). Confirmation and weight management: Predicting effective levels of acceptance and challenge in weight management messages. *Communication Monographs*, *78*(2), 185–211. https://doi.org/10.1080/03637751.2011.564638

Dailey, R. M., Richards, A. A., & Romo, L. K. (2010). Communication with significant others about weight management: The role of confirmation in weight management attitudes and behaviors. *Communication Research*, *37*(5), 644–673. https://doi.org/10.1177/0093650210362688

Dailey, R. M., Romo, L. K., & Thompson, C. M. (2011). Confirmation in couples' communication about weight management: An analysis of how both partners contribute to individuals' health behaviors and conversational outcomes. *Human Communication Research*, *37*(5), 553–582. https://doi.org/10.1111/j.1468-2958.2011.01414.x

Dailey, R. M., Thompson, C. M., & Romo, L. K. (2014). Mother–teen communication about weight management. *Health Communication*, *29*(4), 384–397. https://doi.org/10.1080/10410236.2012.759052

Dainton, M., & Stafford, L. (1993). Routine maintenance behaviors: A comparison of relationship type, partner similarity and sex differences. *Journal of Social and Personal Relationships*, *10*(2), 255–271. https://doi.org/10.1177/026540759301000206

Darlow, S. D., & Xu, X. (2011). The influence of close others' exercise habits and perceived social support on exercise. *Psychology of Sport and Exercise*, *12*(5), 575–578. https://doi.org/10.1016/j.psychsport.2011.04.004

Ellis, K. (2002). Perceived parental confirmation: Development and validation of an instrument. *Southern Journal of Communication*, *67*(4), 319–334. https://doi.org/10.1080/10417940209373242

Genero, N. P., Miller, J. B., Surrey, J., & Baldwin, L. M. (1992). Measuring perceived mutuality in close relationships: Validation of the Mutual Psychological Development Questionnaire. *Journal of Family Psychology*, *6*(1), 36–48. https://doi.org/10.1037/0893-3200.6.1.36

Hammack, P. L., Frost, D. M., & Hughes, S. D. (2019). Queer intimacies: A new paradigm for the study of relationship diversity. *Journal of Sex Research*, *56*(4–5), 556–592. https://doi.org/10.1080/00224499.2018.1531281

Helgeson, V. S., Berg, C. A., Kelly, C. S., Van Vleet, M., Zajdel, M., Tracy, E. L., & Litchman, M. L. (2019). Patient and partner illness appraisals and health among adults with type 1 diabetes. *Journal of Behavioral Medicine*, *42*(3), 480–492. https://doi.org/10.1007/s10865-018-0001-1

Helgeson, V. S., Jakubiak, B., Seltman, H., Hausmann, L., & Korytkowski, M. (2017). Implicit and explicit communal coping in couples with recently diagnosed type 2 diabetes. *Journal of Social and Personal Relationships*, *34*(7), 1099–1121. https://doi.org/10.1177/0265407516669604

Helgeson, V. S., Jakubiak, B. K., Van Vleet, M., & Zajdel, M. (2018). Communal coping and adjustment to chronic illness: Theory update and evidence. *Personality and Social Psychology Review*, *22*(2), 170–195. https://doi.org/10.1177/1088868317735767

Helgeson, V. S., Naqvi, J. B., Seltman, H., Vaughn, A. K., Korytkowski, M., Hausmann, L. R., & Gary-Webb, T. L. (2020). 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*, *54*(5), 346–359. https://doi.org/10.1093/abm/kaz052

Helgeson, V. S., Naqvi, J. B., Zajdel, M., & Horner, F. (2022). Communal coping manifested in daily life: A focus on gender. *Journal of Social and Personal Relationships*, *39*(4), 1023–1042. https://doi.org/10.1177/02654075211052633

Horowitz, J. M., Graf, N., & Livingston, G. (2019). *Marriage and cohabitation in the U. S.* Pew Research Center. https://www.pewresearch.org/social-trends/2019/11/06/marriage-and-cohabitation-in-the-u-s/

Johnson, M. D., Anderson, J. R., Walker, A., Wilcox, A., Lewis, V. L., & Robbins, D. C. (2013). Common dyadic coping is indirectly related to dietary and exercise adherence via patient and partner diabetes efficacy. *Journal of Family Psychology*, *27*(5), 722–730. https://doi.org/10.1037/a0034006

Kayser, K., & Acquati, C. (2019). The influence of relational mutuality on dyadic coping among couples facing breast cancer. *Journal of Psychosocial Oncology*, *37*(2), 194–212. https://doi.org/10.1080/07347332.2019.1566809

Kayser, K., Watson, L. E., & Andrade, J. T. (2007). Cancer as a "we-disease": Examining the process of coping from a relational perspective. *Families, Systems, & Health*, *25*(4), 404–418. https://doi.org/10.1037/1091-7527.25.4.404

Koehly, L. M., Peters, J. A., Kuhn, N., Hoskins, L., Letocha, A., Kenen, R., Loud, J., & Greene, M. H. (2008). Sisters in hereditary breast and ovarian cancer families: Communal coping, social integration, and psychological well-being. *Psycho-Oncology*, *17*(8), 812–821. https://doi.org/10.1002/pon.1373

Lachman, M. E., Lipsitz, L., Lubben, J., Castaneda-Sceppa, C., & Jette, A. M. (2018). When adults don't exercise: Behavioral strategies to increase physical activity in sedentary middle-aged and older adults. *Innovation in Aging*, *2*(1), 1–12. https://doi.org/10.1093/geroni/igy007

Larrosa, S. L., Escudero, V., & Cummings, E. M. (2009). Preschool children and marital conflict: A constructive view. *European Journal of Developmental Psychology*, *6*(2), 170–189. https://doi.org/10.1080/17405620600843247

Lawrence, A. R., & Schigelone, A. R. S. (2002). Reciprocity beyond dyadic relationship: Aging-related communal coping. *Research on Aging*, *24*(6), 684–704. https://doi.org/10.1177/016402702237187

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Ledermann, T., Macho, S., & Kenny, D. A. (2011). Assessing mediation in dyadic data using the actor-partner interdependence model. *Structural Equation Modeling*, *18*(4), 595–612. https://doi.org/10.1080/10705511.2011.607099

Ledermann, T., Rudaz, M., Wu, Q., & Cui, M. (2022). Determine power and sample size for the simple and mediation Actor-Partner Interdependence Model. *Family Relations*, *71*(4), 1452–1469. https://doi.org/10.1111/fare.12644

Lewis, M. A., & Butterfield, R. M. (2005). Antecedents and reactions to health-related social control. *Personality & Social Psychology Bulletin*, *31*(3), 416–427. https://doi.org/10.1177/0146167204271600

Lewis, M. A., & Rook, K. S. (1999). Social control in personal relationships: Impact on health behaviors and psychological distress. *Health Psychology*, *18*(1), 63–71. https://doi.org/10.1037/0278-6133.18.1.63

Lyons, K. S., Winters-Stone, K. M., Bennett, J. A., & Beer, T. M. (2016). The effects of partnered exercise on physical intimacy in couples coping with prostate cancer. *Health Psychology*, *35*(5), 509–513. https://doi.org/10.1037/hea0000287

Novak, S. A., & Webster, G. D. (2011). Spousal social control during a weight loss attempt: A daily diary study. *Personal Relationships*, *18*(2), 224–241. https://doi.org/10.1111/j.1475-6811.2011.01358.x

Ramos, K., Langer, S. L., Todd, M., Romano, J. M., Ghosh, N., Keefe, F. J., Baucom, D. H., Syrjala, K. L., & Porter, L. S. (2020). Attachment style, partner communication, and physical well-being among couples coping with cancer. *Personal Relationships*, *27*(3), 526–549. https://doi.org/10.1111/pere.12330

Rohrbaugh, M. J., Shoham, V., Skoyen, J. A., Jensen, M., & Mehl, M. R. (2012). We-talk, communal coping, and cessation success in a couple-focused intervention for health-compromised smokers. *Family Process*, *51*(1), 107–121. https://doi.org/10.1111/j.1545-5300.2012.01388.x

Romo, L. K. (2015). An examination of how people in romantic relationships use communication to manage financial uncertainty. *Journal of Applied Communication Research*, *43*(3), 315–335. https://doi.org/10.1080/00909882.2015.1052831

Rook, K. S., August, K. J., Stephens, M. A. P., & Franks, M. M. (2011). When does spousal social control provoke negative reactions in the context of chronic illness? The pivotal role of patients' expectations. *Journal of Social and Personal Relationships*, *28*(6), 772–789. https://doi.org/10.1177/0265407510391335

Sackett-Fox, K., Gere, J., & Updegraff, J. A. (2021). Better together: The impact of exercising with a romantic partner. *Journal of Social and Personal Relationships*, *38*(11), 3078–3096. https://doi.org/10.1177/02654075211012086

Saffer, H., Dave, D., Grossman, M., & Ann Leung, L. (2013). Racial, ethnic, and gender differences in physical activity. *Journal of Human Capital*, *7*(4), 378–410. https://doi.org/10.1086/671200

Salmon, J., Owen, N., Crawford, D., Bauman, A., & Sallis, J. F. (2003). Physical activity and sedentary behavior: A population-based study of barriers, enjoyment, and preference. *Health Psychology*, *22*(2), 178–188. https://doi.org/10.1037/0278-6133.22.2.178

Schrodt, P., & Ledbetter, A. M. (2012). Parental confirmation as a mitigator of feeling caught and family satisfaction. *Personal Relationships*, *19*(1), 146–161. https://doi.org/10.1111/j.1475-6811.2010.01345.x

Sieburg, E., & Larson, C. (1971, April 22–24). *Dimensions of interpersonal response* [Paper presentation]. International Communication Association Annual Meeting, Phoenix, AZ.

Solomon, D. H., Knobloch, L. K., Theiss, J. A., & McLaren, R. M. (2016). Relational turbulence theory: Explaining variation in subjective experiences and communication within romantic relationships. *Human Communication Research*, *42*(4), 507–532. https://doi.org/10.1111/hcre.12091

Thompson, A. M., Humbert, M. L., & Mirwald, R. L. (2003). A longitudinal study of the impact of childhood and adolescent physical activity experiences on adult physical activity perceptions and behaviors. *Qualitative Health Research*, *13*(3), 358–377. https://doi.org/10.1177/1049732302250332

U.S. Department of Health and Human Services. (2019). *Physical activity guidelines for Americans* (2nd ed.). https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf

Umberson, D., Donnelly, R., & Pollitt, A. M. (2018). Marriage, social control, and health behavior: A dyadic analysis of same-sex and different-sex couples. *Journal of Health and Social Behavior*, *59*(3), 429–446. https://doi.org/10.1177/0022146518790560

Wallace, J. P., Raglin, J. S., & Jastremski, C. A. (1995). Twelve month adherence of adults who joined a fitness program with a spouse vs. without a spouse. *The Journal of Sports Medicine and Physical Fitness*, *35*(3), 206–213.

Watzlawick, P., & Beavin, J. (1967). Some formal aspects of communication. *American Behavioral Scientist*, *10*(8), 4–8. https://doi.org/10.1177/0002764201000802

Weger, H. (2005). Disconfirming communication and self-verification in marriage: Associations among the demand-withdraw interaction pattern, feeling understood, and marital satisfaction. *Journal of Social & Personal Relationships*, *22*(1), 19–31. https://doi.org/10.1177/026540750504783

Zajdel, M., Helgeson, V. S., Seltman, H. J., Korytkowski, M. T., & Hausmann, L. R. M. (2018). Daily communal coping in couples with type 2 diabetes: Links to mood and self-care. *Annals of Behavioral Medicine*, *52*(3), 228–238. https://doi.org/10.1093/abm/kax047