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UNIVERSITY OF CALIFORNIA
RIVERSIDE

Linguistic Markers of Empathic Accuracy in Everyday Life for Romantic Couples

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Psychology

by

Alexander Ameet Karan

June 2019

Dissertation Committee:

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Dedication

This dissertation is dedicated to my parents. Without them, I would never have had the chance to do research, let alone write this dissertation.

ABSTRACT OF THE DISSERTATION

Linguistic Markers of Empathic Accuracy in Everyday Life for Romantic Couples

by

Alexander Ameet Karan

Doctor of Philosophy, Graduate Program in Psychology
University of California, Riverside, June, 2019
Dr. Megan L. Robbins, Chairperson

Empathy, or understanding another's thoughts and feelings, is a quintessential construct in society. How accurately one empathizes (i.e., empathic accuracy; EA) relates to well-being. EA is especially important in romantic relationships to maintain understanding and closeness. One construct crucial to both romantic relationships and EA is language because it fosters communication. However, specific word use categories have never been empirically related to EA. First-person plural pronoun use (we-talk) and language style matching (LSM) should reflect the cognitive and emotional components of EA and also covary with well-being. Therefore, this dissertation associated we-talk and LSM with EA, and all of these constructs to well-being. Seventy-seven committed romantic couples were assessed through retrospective and momentary self-report as well as the Electronically Activated Recorder (EAR) to record everyday word use. Chapter I explains the conceptual parallels between word use and EA. Chapter II focuses on we-talk, EA, and well-being at the individual level. Own we-talk negatively related to own EA, while partner's we-talk positively related to EA. Further, negative EA (i.e., correctly

empathizing with partner's negative emotions) was the strongest predictor of well-being, though this was also found for positive EA. Chapter III focuses on LSM, EA, and well-being at the couple level. The most likely association was between cognitive LSM (matching cognition words such as pronouns) and negative EA. Negative emotion LSM (matching negative emotion words) positively related with well-being, along with both positive and negative EA. Again, negative EA most strongly related to well-being. Relations between word use and EA were partially supported directing research toward better understanding under what conditions demonstrate this association. Importantly, the current study was naturalistic, meaning participants engaged in any conversations they desired. However, the topic of conversation can change word use and its subsequent relation with EA. This was the first study to attempt relating word use and EA and doing so in a naturalistic setting. As such, more work is needed to further guide under what contexts and conditions it occurs and its relation to downstream well-being. Empathy permeates most any social context and further research on it can have widespread, and positive, consequences.

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Chapter I: General Introduction

Lauded as a quintessential human quality in society, empathy has long been viewed as foundational to individual as well as social well-being (Smith, 1790; 2002). Empirical research has supported empathy's connection to many crucial social interactions, ranging from medically-oriented exchanges (Claxton-Oldfield & Banzen, 2010) to romantic relationships (Simpson, Oriña, & Ickes, 2003). These, along with many other social interactions, depend on verbal communication between conversation partners. To delve more deeply into which verbal markers are associated with empathy, the present dissertation examines linguistic predictors and consequences of empathy within everyday interactions to predict individual and social well-being.

Although language and empathy have not been directly linked, my dissertation aims to bridge the gap and connect these disparate, but parallel, literatures. Previous research has underlined the importance of communication and language in empathy for years, yet no research has specifically examined word use. For example, in identifying cues that indicate empathy, verbal cues (e.g., hearing the content of the sentence) are among the best predictors compared to non-vocal nonverbal cues (Gesn & Ickes, 1999; Hall & Schmid Mast, 2007). Because verbal content has been supported as a predictor of empathy, research should continue to further specify how specific words and language use relate to empathy. Moreover, research needs to continue understanding the translational components (i.e., individual and social well-being) inherent to both constructs.

Empathy and Well-Being

There are three major components of empathy: cognitive, emotion, and accuracy (Zaki & Ochsner, 2011). The cognitive branch of empathy is the sensitivity and understanding of the other's mental states (Hollin, 1994) or the construction of the other's mental state (Hogan, 1969). Emotionally, empathy is a congruent emotional response derived from interaction partners' emotions, where individuals' emotions mirror each other (Eisenberg & Miller, 1987; Eisenberg & Strayer, 1987; Hoffman, 1984). Accuracy is the third major component, which concerns the extent to which the perceiver (i.e., the one who is empathizing) matches the target's (i.e., the receiver of the empathy) cognition and emotions (Ickes & Simpson, 1997, 2001). The remainder of this dissertation will incorporate all three aspects in its definition of empathy: the feeling of another's emotions or the ability to understand the internal states of a target in an accurate way (Davis, 1983).

Empathy is positively related to individual well-being. For example, those who are more empathic also experience fewer depressive symptoms (Cramer & Jowett, 2010; Gordon, Tuskeviciute, & Chen, 2013). Further, subjective well-being has positively related to being more emotionally empathic (Wei, Liao, Ku, & Shaffer, 2011). Although empathy is linked to individual well-being, it is likely due to positive social processes being enacted, particularly support. Though support can be positively related to individual well-being, it is by nature a social construct. Thus, I will be taking into account social contexts and how empathy may relate to social outcomes.

Empathy is particularly important for navigating social contexts. Across the

lifespan, empathy appears to allow individuals to engage appropriately with others, enhancing the quality of relationships. Following children over 20 years, Shiner and Masten (2012) found that children who were more empathic were also more likely to follow rules within their home, school, and community, and to develop friendships. Empathy may aid in fluency of interactions and learning of social norms. In adulthood, those who are more cognitively empathic, are also more engaging in social interactions (Bailey, Henry, & von Hippel, 2008). Engaging conversations are central to high-quality relationships, specifically romantic relationships (Gable, Reis, Impett, & Asher, 2004).

Romantic relationships can particularly benefit from empathy, as empathy relates to relationship-specific outcomes crucial to the maintenance and longevity of relationships. When perceivers were cognitively empathic, targets of the empathy had more relationship satisfaction in tasks that ask romantic partners to discuss emotional events (Cohen, Schulz, Weiss, & Waldinger, 2012). In addition to more relationship satisfaction, a similar study demonstrated empathy related to less conflict while interacting with each other (Cramer & Jowett, 2010). In another study, researchers coded empathy, and emotional, instrumental and negative support from video and audio recorded interactions between partners (Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008). Instrumental support was positively, and negative support was negatively, related to empathy.

Together, this speaks to the connection between empathy and its meaningful link to well-being in social situations, particularly romantic relationship.

However, empathy may not always positively relate to interaction quality, leading individuals to be less accurate in certain situations.

Empathic Accuracy

Although some aspects of empathy are reactionary and automatic, empathy can be a motivated behavior. Empathic accuracy (EA) can depend on the how motivated one is to correctly understand another's thoughts and feelings (see Zaki, 2014). The EA model sums up why partners' motivations to be accurate may fluctuate (Ickes & Simpson, 1997, 2001). The model includes three tenets that allow for specific predictions on well-being due to whether or not partners are accurate. First, if accuracy causes distress in the perceiver, then individuals may be less motivated to be accurate. Second, the clarity of targets' thoughts and feelings can allow the perceiver to be less accurate if he or she does not desire to understand the partner. For example, perceivers will likely not be empathically accurate when the target divulges negative, but ambiguous, information. Third, if there are negative consequences for being empathically accurate, then perceivers will try to not be accurate, so the EA does not negatively impact them or their relationship. For example, if one partner is romantically cheating, and the perceiver empathizes accurately with the partner, they may realize that the partner is not happy in the relationship, potentially leading to relationship dissolution. If they are accurate in such a case, then there would be a negative association between EA and well-being.

In a landmark study, the three tenets of the EA model were tested to understand the situations that invert the normally positive relationship between empathy and well-being (Simpson et al., 2003). Couples visited the lab and either had to discuss a major or

minor issue regarding closeness or jealousy which may shift the motivation for EA. After discussing, participants watched their recordings individually and paused it whenever they felt strong emotions. While paused, participants listed what emotions they were feeling at that time. Each partner then watched the video again and was asked to list what emotions the partner was feeling at these specified times. The two partners' perceptions were then matched (i.e., targets' own perceptions of emotions, and perceivers' perceptions of targets' emotions) to ascertain levels of EA. In line with the EA model, highly stressful conversations that potentially could have led to negative consequences for the relationship resulted in less EA. Further, EA negatively related with closeness in these stressful conversations. This is contrary to the typically positive association with EA when conversations are more neutral or positive. In the stressful conversations, partners may have been more direct with their negative feelings, not allowing the perceiver to give the partner the benefit of the doubt as is often the case in romantic relationships (Lackebauer, Campbell, Rubin, Fletcher, & Troister, 2010). This often leads to more EA (Zaki, Bolger, & Ochsner, 2008), and ultimately less closeness in a stressful situation. Thus, this study supported negative links between EA and relationship quality depending on the situation, as postulated by the EA model.

Accordingly, romantic relationships offer a range of contexts to study the motivation to be accurate and not accurate. For example, when in a romantic relationship, partners want to feel understood which creates the motivation to be accurate (Ickes, 1997). However, once the relationship becomes stable, those that are high in closeness may be positively biased toward their partner, and, therefore, do not engage in EA when

potentially relationship-threatening information is exchanged. This association could also be explained through a third variable such as length of relationship, as it relates positively to closeness and negatively with empathic accuracy (Sened, Lavidor, Lazarus, Bar-Kalifa, Rafaeli, & Ickes, 2017). Owing to these shifts, romantic relationships provide an exemplary context to examine EA. Additionally, because EA combines the emotional and cognitive aspects of empathy, I will focus on EA for the remainder of this dissertation.

Empathic Accuracy in Romantic Relationships

The vast majority of research on EA has focused on romantic relationships because EA is crucial for their formation and maintenance. Partners desire to understand the other as well as feel understood. With a sense of understanding, partners feel more satisfied in the relationship, more trusting of their partner (Kilpatrick, Bissonnette, & Rusbult, 2002) as well as supported (Verhofstadt et al., 2008).

Interdependence, or the reciprocal influence between partners, is both a cause and effect of feeling understood, satisfied, and supported within a relationship. Since both empathy and interdependence afford a sense of understanding of the partner, empathy can be viewed in light of interdependence theory, which seeks to explain how two people interact with one another and how those interactions affect further interactions (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). As stated in interdependence theory, partners affect each other emotionally and physically, leading to cognitive interdependence. This cognitive interdependence can lead to a series of other psychological phenomena occurring such as expanding the self to include the partner (Aron & Aron, 1996), and increasing commitment and investment with the relationship (Rusbult & Buunk, 1993).

Consequently, interdependence positively relates to an array of well-being outcomes, akin to EA. Interdependence may allow partners to realize the other's thoughts because of shared experiences and understanding that their behaviors will influence and be influenced by their partner. This likely relates to the motivation to have EA and influence the ways partners communicate with one another by framing situations through a similar, mutually beneficial perspective. With more motivation to have EA, individuals may be more satisfied with their partner, and consequently feel more similar to each other (Cohen et al., 2012; Lazarus, Bar-Kalifa, & Rafaeli, 2018).

Similarity between partners likely acts as a motivating factor to facilitate EA. Those in romantic relationships already tend to be similar because of assortative mating (Feingold, 1988), and similarity in emotions (Anderson, Keltner, & John, 2003) or personality (Luo & Klohnen, 2005). Due to these similarities, partners may automatically frame each other's thoughts and feelings in analogous ways because of the time spent together and the experiences that have been shared by being interdependent. Likewise, partners may perceive and express themselves in similar manners by speaking similarly (Giles, Coupland, & Coupland, 1991). Language similarity may be evidence of, or can lead to, the ability to understand partners' perspectives and accurately perceive how they feel. Thus, taking interdependence and similarity into consideration, it follows that the ways partners speak may relate to greater EA because they will be more inclusive of the other and share similar perspectives. This can be explored through specific word use categories using the structure of the sentences (e.g., prepositions and pronouns) and the content of the sentences (e.g., positive and negative emotions). These two types of words

can aid in the cognitive and emotional aspects of empathy that would consequently increase EA.

Although both predict support provision, similarity and EA are separate constructs (Verhofstadt et al., 2008). Similarity between partners may afford or be the consequence of EA, but it may also be an extraneous variable caused by external factors. For example, if both partners were having stressful days or not, then they both may have similar emotions anyway. That is, if partners feel the same way, it may not be due to an actual understanding of the partner, but rather similar life experience. As such, emotional similarity needs to be accounted for when assessing EA.

Language and Empathic Accuracy

Language is inherently for social purposes—to allow individuals to communicate their cognitions and emotions. Empathy, on the other hand, is how individuals understand others' cognitions and emotions. Together they complement each other both cognitively and emotionally.

There are function and content words to communicate the cognitive and emotional components of word use, respectively (Chung & Pennebaker, 2007). Function or style words demonstrate “how” one perceives a situation—the cognitive component of empathy and language. Content words demonstrate “what” is being said, such as their emotional experiences—the emotional component of empathy and language. Although the apparent meaning of sentences can seem similar, the ways by which individuals express and frame the content may differ. For example, one may say “you and I are unhappy” compared to “we are unhappy.” In the first sentence, there are two individual

entities. This use of function words, or pronouns in this case, reflects a cognitive separation between the two individuals, “you and I,” compared to the latter where only one entity, “we,” is being discussed. “We” in this case denotes a closer bond between partners compared to “you and I” which likely confers more validity to the use of the content word to describe both partners’ feelings. If partners share an identity, they can likely get into each other’s heads and understand what the other is feeling if not actually feel the same emotions. Moreover, if both partners are using a word such as “we” at similar proportions, that may also then reflect a shared understanding of the situation and each other. Through language, individuals’ word use can reflect similarity in the partners’ thoughts and feelings, which may in turn lead to increased EA.

The aims and methods of this dissertation are novel. My dissertation is the first to connect specific word use to EA and downstream individual well-being and relationship satisfaction outcomes using a unique sample and intensive design. My dissertation will have data from same- and different-gender couples, which is a sample that has never been recruited when assessing EA. Further, my dissertation is among the first to examine EA more naturalistically compared to in-lab. By measuring and associating word use to EA, my dissertation will allow two well-studied fields to merge to open a path for more fine-grained research that delves into specific word categories and EA. Another aim of this dissertation is to explore what implicit markers of EA, if any, exist. EA in research has always been studied as an explicitly measured construct. Though word use is explicitly stated, it reflects implicit cognitive processes that may converge or diverge with the explicit measurement of EA. This is particularly important as predictors and

consequences of EA are not well-established, and as there are numerous parallels between word use and EA. The naturalistic nature of my design allows research to understand how EA is enacted in real-time, adding to the understanding of frequency and ability of partners to do this as well as the qualities of couples that may engage in EA more often than others (e.g., couples that are more or less similar on word use). Furthermore, this dissertation broadens the generalizability of work on romantic relationships by including a diverse set of couples that are often understudied (i.e., same- and different-gender). This points to the need to continue along this path to explore if all couples engage in these phenomena.

There are two linguistic avenues that map onto the expression of similarity of thoughts and feelings between partners. The first is an individual-level reflection of interdependence—first-person plural pronoun use, or we-talk. The second is a dyad-level metric measuring the degree to which partners match others' function word use—language style matching (LSM). I will assess the relations between both of these constructs and EA, individual well-being, and relationship satisfaction. The following is a summary of the methods used to collect data from romantic couples as well as how EA was operationalized. Chapter II is devoted to examining the relationship between we-talk, EA, and well-being, while Chapter III depicts the relationship between LSM, EA, and well-being. Chapter IV summarizes the findings across these chapters and synthesizes how word use relates to EA in everyday life, while assessing its utility across contexts.

General Method

Participants

Partners in romantic relationships that had been married or in a marriage-like relationship for at least one year and had been living together for at least one year were recruited to be in this intensive, longitudinal study. All participants ($N = 77$ couples; 154 individuals; 81 individual women; 20 same-gender men and 24 same-gender women couples) were over the age of 18 ($M_{Age} = 32.65$, $SD = 11.74$) and did not have any health conditions that impaired their everyday functioning. Participants were a community sample recruited through a variety of methods including emails sent out to the University of California, Riverside and the LGBT Center of the Desert, flyers posted around the Inland Empire, and Los Angeles, Orange and San Diego Counties, social media such as Los Angeles LGBT Center's Twitter account and an Instagram account made for this study, attending targeted LGBT group meetings and Pride events, and snowball recruitment. All interested couples were then screened for eligibility. Out of 170 interested couples, 78 were eligible and started the study (51 couples were no longer interested after initial communication or were no longer able to participate, 17 couples were not living together, 17 additional couples were undergraduate students not deemed to be in a serious and committed enough relationship because they were in a relationship for less than a year and 7 couples had medical issues that impeded their daily functioning). Seventy-four couples completed the entire study (2 broke up before completing all parts of the study and 2 had external issues and could not complete the study, but all 4 completed the first weekend). All participants were compensated \$25 per

completed weekend, allowing up to \$50 per individual in the dyad. Participants were relatively ethnically diverse with 71 White, 42 Latinx, 12 Asian, 2 Black, and 15 other/mixed ethnicity participants (12 missing).

Procedure

Participants were informed that the study was about how daily behaviors and social interactions in couples related to both individual well-being and couples' relationship quality and each step of the study during the screening phase. If participants lived in Riverside, they were asked to come to our lab on campus. If they lived in another city, I traveled to them to reduce participant burden.

Two separate weekends were assessed totaling four visits throughout the duration of the study. The first visit was always on a Friday where participants filled out questionnaires pertaining to demographics, personality, well-being, and relationship quality with two exceptions: one met on Saturday and started their recording weekend that day, and the other met on Wednesday to fill out baseline questionnaires but started the recording weekend on Friday. Following the questionnaires, participants were set up with Ecological Momentary Assessment (EMA) for the weekend. EMA was chosen to specifically assess participants' perceptions "in-the-moment" rather than retrospectively. In doing so, the study aimed to reduce recall bias associated with retrospective reports that may particularly shift responses regarding temporally contingent constructs such as emotion and consequently EA (Trull & Ebner-Priemer, 2009). Participants were sent one text message on the first Friday of their participation during their meeting with me to make sure all participants knew what to expect for Saturday and Sunday. During the

weekend, participants received five text messages on Saturday and Sunday, randomly dispersed between the hours of 10am to 9pm within roughly 2.5-hour blocks. Prompts were sent with a minimum of one hour in between text messages. Each text message contained a link to a survey that took about a minute to complete asking about their current thoughts, feelings, social interactions and health behaviors. If participants failed to respond to the text, up to 3 reminders were sent every 15 minutes and it was inaccessible after the final set of 15 minutes.

The final step on Friday was to set up the Electronically Activated Recorder (EAR) to record snippets of ambient sounds from participants' waking days throughout Friday, Saturday and Sunday. With the addition of the EAR, the study was able to assess constructs that are not reliably reportable such as everyday word use. This setup also allows participants to engage in any social interactions they normally would to understand how verbal transactions occur unobtrusively (Mehl, 2017). This methodology depicts a realistic portrait of the mundane and meaningful contexts participants are in allowing for high ecological validity. Participants were verbally directed on how to wear the EAR, when they can take it off, how to tell others about the device, and how to review the sound files after their participation was complete. Participants were allowed to delete any sound files they were uncomfortable with sharing, without question, for any reason. Sleeping hours were also programmed into the EAR app. Participants told me the hours they typically sleep and the program stopped recording a half an hour after the stated time for six hours. Additionally, participants were shown the pause function, which guaranteed for five minutes at a time, no recording would take place if the pause button

was pressed. The EAR automatically started recording again after the five minutes elapsed. Finally, participants were instructed and asked to wear the EAR on their waist with the attached clip. No recordings were made after Sunday night.

Once the weekend concluded, participants were asked to complete questionnaires and return the devices. All questionnaires related to demographics and specific questions about the weekend such as emotions over the past three days. After returning the devices, participants were scheduled for the second weekend of the study for one month after the first weekend. The second weekend had the exact same procedure, ending on Sunday night. Once the second weekend was completed, I made CDs with all of the recordings on them with a password to protect the confidentiality of the recordings. Participants were given two weeks to review the CDs, unless they asked for more time, and let me know which, if any, files they wanted to delete.

Measures

Individual well-being. A few measures were assessed to examine individual well-being. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to measure positive and negative affect throughout the weekend. The PANAS is a 20-item questionnaire with 10 items measuring positive emotions (e.g., enthusiastic or proud) and 10 items measuring negative affect (e.g., afraid or ashamed). Participants respond with the extent to which they felt each emotion on a five-point scale (1 = *Not at all* to 5 = *Extremely*). Larger numbers indicate more positive and negative affect (α s = .88 and .87, respectively).

Individual satisfaction was also measured by the Center of Epidemiological

Studies Depression (CES-D; Radloff, 1977) scale. The CES-D is comprised of 20 items rated on a four-point scale (1 = *Rarely or none of the time (less than 1 day)* to 4 = *Most or all of the time (5-7 days)*). The CES-D asks participants how often individuals have felt depressive symptoms over the past week, with questions such as “I felt depressed” or “I had crying spells.” Larger numbers indicate more depressive symptoms ($\alpha = .69$).

Happiness was also assessed through the four-item Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999). Participants rate the degree to which they consider themselves as, for example, a happy person on a seven-point scale (1 = *not a very happy person* to 7 = *a very happy person*). Larger numbers indicate more subjective happiness ($\alpha = .91$).

Relationship satisfaction. Each participant completed the Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS is a widely used reliable scale that assesses relationship quality using 32 items that comprise four subscales (cohesion, consensus, satisfaction and affection; Graham, Liu, & Jeziorski, 2006). Only relationship satisfaction was assessed for my dissertation. A typical item in the satisfaction subscale out of 10 questions asks on a six-point Likert scale (0 = *all of the time*, 5 = *never*) “How often do you discuss or have considered divorce, separation, or terminating your relationship?” Larger numbers indicate more relationship satisfaction ($\alpha = .75$).

Word use. Word use was derived from transcripts of participants’ spoken words when with, and only with, their partners over the two weekends wearing the EAR. The EAR was an iPod Touch with an app called “iEAR.” The app was programmed to record 50 seconds every 12 minutes during participants waking hours—the EAR did not record

for 6 hours during participants' sleeping hours. This yielded approximately 12% of each participants' days.

Each participant's set of transcripts was analyzed using the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Boyd, Jordan, & Blackburn, 2015). LIWC software is an extensively used text-analysis tool that has been widely validated, particularly for emotion words (Bantum & Owen, 2009; Tausczik & Pennebaker, 2010) and pronoun use (Pennebaker, 2011; Pennebaker, Mehl, & Niederhoffer, 2003). LIWC analyzes text word-by-word and categorizes it into different psychological and linguistic categories. The software then creates a percentage of word use (specific category/total word use) for categories for each individual in the sample. The method sections in Chapters II and III will further elucidate the categories of words used for we-talk and LSM, respectively.

Empathic accuracy. EA was derived from the EMA measures. Using the same adjectives and scaling from the PANAS, both partners reported the degree to which they felt positive and negative. Participants also reported their perception of how their partners were feeling if they had just been in an interaction together in the past 10 minutes. EA was computed as the degree to which the partners were able to correctly perceive each other's emotions. That is, EA was a continuous difference score variable between partners' perception of the others' emotions and self-reported emotions: $EA = |Perception\ of\ P1\ emotion_{P2} - Emotion_{P1}|$. If a partner is accurate they will receive a score of 0. There is a possible range of 5. Scores will be reversed such that higher scores denote more accuracy (0 = *not at all accurate* to 4 = *completely accurate*). This system for calculating EA is based on Ickes' studies (e.g., Ickes, 1997). EA will be

separated by valence as positive and negative affect seem to be two distinct, but related, constructs (i.e., positive EA and negative EA). All difference scores were calculated in-the-moment and then averaged across the entire weekend for each participant.

Control variables. Control variables were based on theoretical and empirical associations to EA. All analyses in Chapters II and III were conducted with and without these control variables.

Emotional similarity. Emotional similarity will be used as a control variable because partners' emotions may be similar due to external variables that may affect EA. This was also derived from the same EMA questions above measuring how each individual participant currently felt both positively and negatively. Emotional similarity will be the extent to which partners' self-reported scores of emotion are similar, $Emotion\ Similarity = |Emotion_{p1} - Emotion_{p2}|$. Scores have a possible range of 5. The scores were reverse scored such that higher scores denote more similarity (0 = *no similarity* to 4 = *complete similarity*). Two separate similarity variables were used: positive emotional similarity and negative emotional similarity.

Relationship length. Individuals were asked how long they have been with their partners. All couples had to have been together for at least a year to be eligible for the study. All lengths were in months.

Data analytic interpretation. One final important note must be taken into consideration in the interpretation of effects for this dissertation. Given the movements in Psychology to be transparent and to improve replicability, my interpretation of effects was not based solely on the standard $p \leq .05$ significance level. Rather, I chose to

interpret evidence based on consistency in two ways: consistency with theory and extant literature or consistency in empirical results reported here. By and large, this interpretation aligns with a recent paper exploring other ways to meaningfully interpret and report effects (Hurlbert, Levine, & Utts, 2019). In this manner, interpretations were based on both significance tests as well as effect sizes, speaking to the likelihood of effects rather than a dichotomous, and often arbitrary, decision.

Chapter II: We-Talk, Empathic Accuracy, and Well-Being

Interdependence is a hallmark of romantic relationships. As partners develop interest in each other and spend time together, they become interdependent, meaning their behaviors mutually influence each other's thoughts, feelings, and behaviors. With mutual influence over the other, partners may be more motivated to understand the partner because, in turn, that will influence their own well-being and relationship quality. Interdependent partners also tend to be committed to each other because they both benefit from a high-quality relationship (e.g., both receive support and live longer and healthier lives; Rusbult, 1983).

Given the commonplace and impactful nature of interdependence, numerous theories contain postulations on why interdependence is critical to individual well-being and relationship satisfaction. According to interdependence theory, it is vital for individuals in relationships to understand that one's actions have consequences for their partner, which will inevitably impact the self consequently (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). The mutuality between partners shifts the normal, self-centered perceptions individuals have to a more relationship-centered perception wherein both partners come together to act as a unit. The more that the partners overlap their own identity with the other, the more that they become interdependent and vice versa (Aron & Aron, 1996), often leading to more commitment and investment in the relationship (Rusbult, 1983; Rusbult, Martz, & Agnew, 1998).

As identities merge and partners become more committed and invested in the relationship, their perceptions of themselves and behaviors may reflect this shift to

interdependent from independent. Since language reflects individuals' perceptions, word use likely follows to match the moments where partners are interdependently perceiving situations. That is, instead of using first-person singular and third-person singular pronouns (e.g., I or he/she, respectively), individuals may use first-person plural pronouns (e.g., we, us, our). Known as we-talk, this style of communication better reflects the merged unit between partners, compared to the use of, for example, "you and I." Because of its strong ties to interdependence and romantic relationships, we-talk is often related to well-being within romantic couples.

We-Talk and Well-Being

The majority of studies examining we-talk and well-being indicate a positive relationship between the two, although there are notable exceptions. In a meta-analysis of 30 studies testing this association in romantic couples, a general positive relationship emerged between we-talk and all outcomes assessed (Karan, Rosenthal, & Robbins, 2018). Given the diversity of outcomes in the we-talk studies, the outcomes were categorized into five separate indicators of well-being: relationship outcomes, relationship behaviors, mental health, physical health, and health behaviors. We-talk positively related to each individual indicator. One potential reason we-talk positively related to these outcomes is because of its ties to support. That is, interdependent mindsets likely lead to supportive responses. Support is particularly crucial in romantic relationships, reliably relating to well-being (Marroquin, Tennen, & Stanton, 2017); this is likely the reason why we-talk related to both mental health and relationship satisfaction.

The interdependence reflected through we-talk affords dyadic, or communal, coping that relates positively to well-being. Dyadic coping allows both individuals in the couple to support each other and act together when facing a stressful situation that is external to the relationship (Lyons, Mickelson, Sullivan, & Coyne, 1998). Akin to empathy, these situations are when interdependence may be most valuable in romantic relationships (Herzberg, 2013). For example, in discussions of a conflict between partners, interdependent couples tend to resolve problems together, as evidenced through we-talk, as opposed to less interdependent partners (Williams-Baucom, Atkins, Sevier, Eldridge, & Christensen, 2010). This interdependence positively relates to relationship satisfaction. Further, partners will opt for more positive and less negative behaviors when discussing a conflict (Simmons, Gordon, & Chambless, 2005). Partners likely use their interdependent mindset and amicably work through problems together rather than becoming hostile and contemptuous. This idea of working together is highlighted in coping contexts.

Couples coping with illness demonstrate how interdependence is enacted between partners. For example, when one partner has experienced heart failure, the spouses' use of we-talk related to fewer heart failure symptoms for patients and perceived themselves as healthier compared to when spouses used less we-talk (Rohrbaugh, Mehl, Shoham, Reilly, & Ewy, 2008). We-talk may serve as an indicator to patients that spouses are willing to help and makes the illness context a communal one compared to solely patients' problems. There is likely more cohesion between partners and more correspondence about and concordance with their behaviors in the aim of supporting

patients. Further support for this perspective is derived from clinical therapy where one partner is attempting to reduce problematic drinking. Couples were educated on the importance of interdependence in effectively curbing problematic health behaviors. The therapy increased we-talk, which positively related to days abstaining from drinking; that is those that used we-talk more often, also were more likely to abstain from drinking (Hallgren & McCrady, 2015). There seems to be an understanding between partners that one partner can support the other and that one partner understands that the patient needs more help. This sort of thinking can transfer to partners in everyday life as well when one partner is in need and the other is able to help. However, this same reaction of working together can also inadvertently bring about unhealthy behaviors.

Interdependence and we-talk may positively relate to satisfaction in relationships at the cost of health. One study tracked couples that eat as a coping mechanism. When partners used more we-talk, they also had increased body mass index (Skoyen, Randall, Mehl, & Butler, 2014). Though couples understand they need to work together to maintain healthy eating habits, those new habits may reduce the bond the partners once shared. The authors concluded that instead of engaging in healthy eating behaviors, partners opted for maintaining the relationship by continuing to eat together to reduce stress. This still means, however, that those who use we-talk understand the partners' thoughts and feelings, but rather than changing their eating habits, continue to engage in unhealthy behaviors because they want to remain close.

We-Talk and Empathic Accuracy

We-talk and EA align through the cognitive underpinnings of interdependence and social support. Both we-talk and EA are inherently interdependent constructs. We-talk reflects the unconscious or conscious knowledge that two individuals are affected by one another and is often related to a positive view of the other, especially in romantic relationships (Agnew et al., 1998). With a positive perception, there may be more motivation to understand the other, which also may naturally occur given the individuals likely share their experiences and emotions with one another (Moss & Schwebel, 1993). These components feed into an understanding between partners, which is critical for EA.

Two potential implications of we-talk are the close understanding of the partner and the desire to give support to the partner. When partners understand each other, they can know how to work communally, which is reflected in we-talk (Rusbult and Van Lange, 2008). Therefore, we-talk can serve as an indication that partners are willing to be supportive of each other, not unlike how EA is often a precursor to support (see Bowen, Winczewski, & Collins, 2016 for both empirical support and exceptions). When we-talk is used in these supportive contexts, it facilitates understanding and EA compared to outside of supportive contexts where there still may be a positive, yet weaker, association.

The magnitude that EA, we-talk and well-being relate to each other likely also depends on who is using we-talk. If we-talk is used by the self and related to their own well-being, then that is an actor effect. If the partner's we-talk is related to own well-being, then that is a partner effect. When relating we-talk to well-being, partner effects

tend to be stronger than actor effects (i.e., partner we-talk to own outcomes is stronger than own we-talk to own outcomes; Karan et al., 2018; Rentscher, Soriano, Rohrbaugh, Shoham, & Mehl, 2017). Further supporting the social support aspect of we-talk, this partner effect seems strongest when in a patient population where one spouse is using we-talk with a partner who is a patient (e.g., Rohrbaugh et al., 2008). Following this empirically supported logic, understanding from a partner, in the form of either we-talk or EA, likely more strongly relates to well-being compared to own we-talk or EA.

Hypotheses

Given the multiple links between EA, we-talk, and downstream well-being for individuals and relationships, the current set of analyses will focus on the interrelations of these constructs in everyday life. A few factors may shift these associations and will also be assessed. Relationship length and emotional similarity may attenuate the relationships between we-talk and EA (see Chapter I for this full argument).

H1. There should be a positive relationship between EA and we-talk. This should be the case for both positive and negative EA and for actor and partner effects. However, individuals' own we-talk should relate more strongly to both types of EA compared to the partners' we-talk.

H2. There should also be a positive relationship between well-being (i.e., individual well-being and relationship satisfaction), positive and negative EA and we-talk. Partner effects should be stronger than actor effects (Karan et al., 2018).

Method

Participants and Procedure

Please see the Chapter I Method.

Measures

Individual well-being, relationship satisfaction, positive and negative EA, and emotional similarity will be the same as in Chapter I. All variables are measured as an actor variable, or their own responses, and a partner variable, or their partners' responses.

Word use. Using LIWC (see Chapter I), the percent of first-person plural pronouns (i.e., we-talk) to total words spoken was calculated. Words from this category included words such as “we,” “us,” and “our.” Larger numbers represent more we-talk.

Data Analytic Plan

Descriptive statistics. Means and standard deviations were calculated to understand the central tendencies and variance between partners and across weekends.

Correlations. Because my dissertation data contains both same- and different-gender couples, I conducted both Pearson product-moment correlations (hereafter referred to as “correlations”) as well as intraclass correlations (ICCs). For the same-gender couples, individuals are indistinguishable, meaning there is no meaningful designation between which partner is which for any of my current analyses (e.g., both are female instead of one male and one female). When conducting ICCs, all possible combinations of partners are created and assessed for similarity, allowing for the ability to see the absolute level of similarity between partners without assigning a meaningful partner 1 or partner 2 (Kenny, Kashy, & Cook, 2006). The correlations will give a sense

of the magnitude of the relationship between constructs for the whole sample to understand which variables meaningfully relate to one another. Though the estimates will be biased because of the nonindependence of observations, they will aid in constructing regression models. The ICCs will also give a sense of how related partners' observations are to each other without biasing the estimates. This will help create the regression models (e.g., understanding if models need to account for the nonindependence of observations or if standard multiple linear regression models can be used) (Kenny, 1995; Kenny & Judd, 1986).

Actor-Partner interdependence model. In this case, since I am analyzing both actor as well as partner effects, an Actor Partner Interdependence Model (APIM) will be used to appropriately fit the equations and account for the nonindependence. Both partners' actor and partner effects will be assessed simultaneously to account for the nonindependence—the common variance between partners are partialled-out, leaving only the unique predictive actor and partner effects. APIMs included all significant correlations or were derived from the theoretical models explained in Chapter I to understand the unique paths from we-talk to EA. In this way, I examined the relationship from own we-talk to own EA and partner we-talk to own EA. Structural equation modeling was used to estimate effects from these indistinguishable dyads as APIMs. Because partners were indistinguishable, both actor effects between partners are equal. The same follows for both partners' partner effects. Covariates were also added into the model after assessing the main effects between we-talk and EA. All of these models

account for positive and negative emotional similarity between partners as well as relationship length.

Results

Descriptive Statistics

Participants generally adhered to the procedure. Out of 3,388 EMA texts, participants completed 2,441 (72%). Participants also wore the EAR often over the weekends, only taking off the device for approximately 5,490 out of 70,475 clips (7.79%).

Table 1 portrays means and standard deviations for each of the two weekends as well as correlations between the two weekends. Means across the two weekends seemed similar. Because of the similarities, all of the focal variables were tested for strength of correlation across the two weekends. The correlations supported rank-order consistency across the weekends. Thus, both weekends were combined creating one averaged variable across weekends for the participant rather than two separate estimates per weekend per person.

Table 2 depicts the means and standard deviations of all of the variables of interest. On average, participants spoke 1,387 words in a given weekend across sound files while with their partner. We-talk was used approximately 1% of the time in conversations between partners, which is roughly equivalent to previous research (e.g., Karan, Wright, & Robbins, 2016). On average, partners were empathically accurate given their perception of their partner's affect. For both positive and negative affect, people reported their partner's affect within one point of their actual reported affect. On the

whole, participants were in both highly satisfying relationships and individually well, experiencing high positive affect and subjective happiness, low negative affect, and few depressive symptoms.

Regarding the control variables, participants were again mostly similar in their own reports of affect. Typically, they were within one point of each other on a moment-to-moment basis. Participants were in relationships for about seven and a half years on average, indicating committed relationships.

Correlations

All correlations for this section are presented in Table 2. Because of the novelty of the design and questions asked in this dissertation, I first checked the extent to which the two types of EA correlated with one another as actor and partner associations. If one was empathically accurate for positive affect, they also tend to be accurate for negative affect. The partner effect from own positive EA to partners' positive EA was positively related as well. This also applied for own negative EA to partners' negative EA. When own positive affect was high, partners' negative EA was also high, though the converse did not seem to hold from own negative EA to partners' positive EA. Overall, if one is able to be empathically accurate for positive or negative affect, they and their partners are more likely to be accurate as well.

Partners seemed to positively relate to each other on most variables of interest as well, indicating substantial nonindependence between partners. Correlations were positive and large in magnitude, commonly around .30 with a few exceptions. However, positive affect and subjective happiness between partners were not as highly related,

relatively. This helped support that variance constructs need to be accounted for in further analyses to help attain accurate *p*-values and estimates. To further explore associations between partners, ICCs were conducted. ICCs revealed that partners tended to be more similar to each other than any other individual in the sample, with all ICCs larger than .10 (Table 1)—the loose threshold used to decide whether or not to use statistical models that account for both partners in the dyad (Kenny et al., 2006). There was only one exception, subjective happiness, which had an ICC of .07. Dyadic models were still used when analyzing happiness due to the conceptual reasons that partners may be more similar than not.

No strong relations (i.e., low effect sizes and high *p*-values) between we-talk and either positive or negative EA emerged. This pattern of no strong relations continued between we-talk and depressive symptoms, positive affect, negative affect, and subjective happiness for both actor and partner effects, with one exception; there was a negative partner effect between we-talk and subjective happiness. However, this effect was not hypothesized, does not fit with most previous literature, and may be spurious given it is the only strong relation out of all of the correlations with we-talk. On the other hand, negative EA consistently related to these well-being outcomes in the expected directions. There were reliable negative actor associations between negative EA and depressive symptoms and negative affect as well as positive actor associations with positive affect and subjective happiness. This same set of partner associations was also reliable and relatively stronger than the actor associations. Unexpectedly, positive EA only related to negative constructs. For both actor and partner associations, there was a negative relation

between positive EA and depressive symptoms and negative affect.

Covariates did seem to relate to EA, however. In particular, correlations between positive and negative emotion similarity, and, in particular, negative EA were large and reliable. The same pattern occurred for positive EA, but generally to a lesser extent. Partner effects were small in magnitude concerning support variables. Finally, relationship length also related to negative EA, though the effect was virtually null for positive EA. Due to the overwhelming relations between EA and these variables, APIMs were considered both with and without these covariates in the models.

Actor-Partner Interdependence Models

Estimates for the APIMs were strong and reliable for both positive EA and negative EA when associated with we-talk (Figure 1). However, the estimates were not all in the predicted directions and were more likely in these regression models compared to the zero-order correlations. The actor effect negatively predicted positive EA from we-talk and the partner effect positively predicted positive EA. This was consistent with negative EA wherein the actor effect was negative and the partner effect was positive.

The next step included the covariates, which became the best predictors of EA (Table 3). Positive emotional similarity became the best predictor of positive EA. Analogously, when predicting negative EA, we-talk as an actor and partner effect lost unique predictive ability after the covariates were added to the model. Negative emotional similarity became the best predictor, positively relating to negative EA.

We-talk was then related to individual well-being and relationship satisfaction. Contrary to my predictions, we-talk was not a strong predictor of well-being as either an

actor effect or a partner effect (Figures 2-4). The lowest p -value was .31, indicating it is unlikely that we-talk uniquely predicts well-being, at least not to a large enough degree on average given this sample. After adding covariates, the interpretations remained the same; we-talk was unable to reliably predict well-being (Tables 4-6). Instead, positive emotion similarity and relationship length negatively predicted depressive symptoms. Negative affect was also predicted by emotion similarity, but negative emotion rather than positive emotion. This was a negative association as with depressive symptoms, and in addition to relationship length. Neither positive affect nor subjective happiness were reliably predicted from the constructs of interest. However, we-talk did positively and strongly relate to relationship satisfaction, though the estimate was variable. Again, contrary to predictions, we-talk was stronger as an actor effect than a partner effect.

EA was then substituted in the above models for the well-being outcomes (Figures 5-9 and Tables 9-11). Negative EA consistently associated with most of the well-being outcomes. That is, it positively related to positive affect and subjective happiness, and negatively with depressive symptoms and negative affect as both an actor and partner effect. Further, partner effects tended to be stronger when related to depressive symptoms and negative affect, while actor effects were stronger for subjective happiness and positive affect. The positive pattern of results extended to relationship satisfaction, but only as an actor, and not as a partner, effect. In general, when relating positive EA, effects were weaker and not as consistent. There was a positive relation between positive EA and positive affect as a partner effect. Negative affect was associated negatively with positive EA as both an actor and partner effect; the partner

effect was more likely even though the actor effect was technically stronger. Moreover, positive EA positively related to relationship satisfaction as an actor effect.

Discussion

This chapter focused on a verbal measurement of interdependence (i.e., we-talk) and EA. Positive and negative EA were related to we-talk and all of these constructs were related to well-being (i.e., individual well-being and relationship satisfaction). We-talk reflects an interdependent mindset which should lead to more focus on the partner. Thus, there should be more understanding between partners. Therefore, I predicted positive relationships between we-talk and EA. However, my hypotheses were not supported. If anything, the opposite held, supporting a negative association between we-talk and EA. This may speak to the methods used in the current study. More likely than not, we-talk may not have a true association with EA on average. Instead, emotional similarity may be the better predictor.

Further, whereas we-talk overall did not relate to individual well-being, EA did. Negative EA in particular most consistently related to well-being and typically to a larger degree than positive EA. This pattern aligns with extant research, stating negative constructs may matter more in the prediction of well-being (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Lazarus et al., 2018). Conceptual and methodological considerations are discussed in exploring the current results.

We-Talk and Empathic Accuracy

We-talk and EA should be linked due to their similarities. Both we-talk and EA reflect understanding of the other and prioritize the relationship as opposed to the self.

Further, both we-talk and EA have cognitive aspects. We-talk reflects an interdependent mindset that takes into account the self and the partner while EA demonstrates perspective-taking of the partner. Although these similarities exist, correlations and APIMs, with the addition of covariates, tended to not reveal associations between we-talk and EA. This interpretation can be understood given some conceptual differences between we-talk and EA.

On a moment-to-moment basis, when one empathizes, their focus is on the other and not on the self. This other-focused perception is driven by their own past experiences. For example, if one sees their partner is sad, it will trigger a time that they were sad (Shamay-Tsoory, 2011). Their previous experience of sadness is then mapped onto the current situation. This idea is known as the “different self” because it is one’s own emotions but translated to someone else (Gallese, 2005). We-talk, on the other hand, is a combination of self and other, reflecting a new, combined entity (Agnew et al., 1998). These two conceptualizations, though seemingly similar, can also be in opposition to each other. Interdependence should lead to mutuality between partners. With mutuality, there are shared physical spaces and emotional disclosures between partners that often are the scaffolds by which committed relationships founded (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959; Rusbult & Van Lange, 2008). As such, personal feelings and thoughts are discussed which increases the likelihood of understanding the other (Levinger, 1980). However, in order for pure interdependence to be true, pure empathy must be false and vice-versa. Someone who is empathizing may say “*I* understand how *you* feel” and may also be thinking “because *I* have been through that before” which

highlights the separation between partners. Though the current work cannot completely capture these more momentary fluctuations, the mean-level results are in line with this reasoning. Notwithstanding the similarities between the two, if we-talk is occurring, then EA cannot be occurring as well. Similarly, we-talk may be the next step in supporting a partner. For example, after engaging in EA, a partner may say “we can get through this.” However, this step is not guaranteed after empathizing (Winczewski, Bowen, & Collins, 2016). Statements that express this concern and support also may not be applicable to everyday life and may be more appropriate for stressors of a larger magnitude. Given these explanations, null and negative associations may occur between we-talk and EA.

When examining these constructs through APIMs, a negative association is exactly what was obtained for the actor effects. First, this differentiation could have occurred because the actor and partner effects were suppressed in the zero-order correlations. Once the unique effects were estimated, a clearer picture of these effects emerged. Actor and partner effects were in opposite directions. The actor effects can be, in part, explained through the logic that EA and we-talk are different processes when within one person; to be interdependent precludes the probability of being empathically accurate, at least in the moment. Conversely, the partner effect from we-talk to EA was positive. If one of the partners is using we-talk, then the other is more likely to be empathically accurate. This result is in line with the original hypotheses and logic. Although own we-talk may not relate (or may negatively relate) to own EA in-the-moment, we-talk is still valuable in setting up an understanding dynamic between partners, eventually leading to more EA potentially across time.

Because we-talk still generally reflects relationship-oriented perceptions and behaviors, interdependent mindsets may go hand-in-hand with EA. Interdependence can serve as a foundation for partners to understand one another. There is likely a process of communication between partners leading to the accuracy of affective states among the dyad members. To be interdependent is to place importance on the partner and on the relationship. When this occurs, the individual likely shares more information and is more candid with their emotions, allowing the partner to be a more accurate perceiver. Previous work supports this association as partner expressiveness is highly linked to EA ability (Zaki, 2014). The level of trust that partners must have in each other to divulge personal and emotional topics is also a function of commitment processes; these commitment processes parallel interdependence. Interdependence may also manifest itself in relationship behaviors that help maintain the partner's belief that this partnership is a worthwhile investment (Lemay Jr., Clark, & Feeney, 2007; Rusbult & Van Lange, 2008). If the partner is invested, then they may use more energy toward understanding the other and what they are feeling, so they can appropriately attend to their partner's state of mind (e.g., capitalizing on positive situations and giving support in negative situations; Gable et al., 2004). In light of this, it follows that the EA demonstrated between partners should relate to well-being and relationship satisfaction as is the case in my dissertation.

Once covariates were added, however, we-talk did not relate as strongly to EA. Instead, emotional similarity better predicted EA. Both positive and negative emotional similarity related to both positive and negative EA, though the matching affect was always the stronger association. In the full APIM, for positive EA, positive emotional

similarity was the best predictor. The matching continued for negative EA being most strongly predicted by negative emotional similarity. A couple of explanations may help clarify these strong associations.

Emotional similarity may be a vital component for committed relationships. Similarity is actually among the top reasons couples enter relationships in the first place (Feingold, 1988). If partners are emotionally similar, they can resonate with one another more fluidly and feel comfortable expressing their emotions. This could allow for better partner perception of affective states. Moreover, individuals tend to think that those in their in-groups are more similar than not (Jacoby-Senghor, Sinclair, & Smith, 2015). If one partner believes they themselves are positive, they may also believe their own partner is positive because of their connection. The partner may also actually *be* more similar because their ranges of emotions are synchronized. For example, if the partner had a stressful event occur, the perceiver can easily put themselves in the other's shoes and calibrate how they may feel and then overlay that experience onto the partner. One individual does not want to over embellish the events or emotional reaction and may instead try to meet their partner where they are emotionally. Over time, in committed couples, partners may end up perceiving themselves as or actually being more similar because of their motivation to appropriately respond to the other.

The reverse path could also be likely. If partners are empathically accurate, then they may end up being more emotionally similar. If the goal of the relationship is to understand one another and they have decided to commit, as is the case in this sample, then over time, the range of emotionality may sync up across individuals. Partners want

to be at the same level as each other emotionally. Stabilized and similar emotions across partners, regardless of if it is through interdependence or EA, will probably then relate to individual well-being and relationship satisfaction.

We-Talk, Empathic Accuracy, and Well-Being

Across the daily life contexts participants engaged in with their partner, we-talk positively related to relationship satisfaction, on average. Contrary to my hypotheses and previous work, we-talk only positively related to relationship satisfaction, and not to the individual well-being outcomes. At first glance, this runs counter to a meta-analysis conducted that revealed positive associations between we-talk and well-being (Karan et al., 2018). However, the strongest associations were between we-talk and dyadic outcomes such as relationship satisfaction rather than with individual outcomes that are a subset of mental health (e.g., affect). Moreover, the overall association was not large, making it difficult to detect the effects of these modest, but reliable, findings. Additionally, the current findings differ in one major way—the data are naturalistic rather than in-lab or experimental. We-talk and its functionality may differ depending on the study design and the context in which it is being used. As such, more naturalistic research is necessary to further uncover how we-talk related to well-being in an externally and ecologically valid way.

Both types of EA were more consistently related to individual well-being and relationship satisfaction than we-talk. Negative EA was the strongest and most reliable predictor of well-being and relationship satisfaction, always relating in the hypothesized, positive direction. Negative EA may be the better predictor between the two types of EA

because it can serve a diagnostic function in the relationship. If one partner understands the other's negative affective state, they may be able to act on it better by giving more fine-tuned support. This would help explain the partner effect between own negative EA and the partner's well-being. Negative EA may also lead to making the partner feel validated and understood, another supportive function that can ameliorate the effects of negative affect. Research also supports the idea that negativity can have larger effects compared to positivity, which is in line with the current findings (Baumeister et al., 2001).

Positive EA did also relate to well-being, providing evidence for the general positivity of EA with relationships. These associations may be better interpreted in light of the sample collected. All couples in the current sample were in committed relationships and were generally feeling positive and happy and were in satisfying relationships. The variation in positive EA, compared to negative EA, was smaller, meaning there may not have been as many differences across individuals in how positive affect was perceived. Consequently, it may not be the best predictor, though it does still matter for the individual and for the relationship. Positivity between partners can serve as a foundation to increase resilience and thrive, ultimately dampening the negative effects of stress (Feeney & Collins, 2015). The effects of positive EA may then serve as a better predictor of which couples may fare in a tumultuous situation, rather than in their everyday lives. Positive EA may also have more downstream consequences rather than negative EA which may be relatively more immediate. For both positive and negative

EA, being able to understand the partner and give the support needed also positively relates to own well-being (Brown, Nesse, Vinokur, & Smith, 2003).

Once covariates were added, negative EA remained as a unique predictor of well-being, whereas positive EA was no longer a reliable predictor of well-being. Instead, relationship length consistently related to well-being, in the positive direction. When predicting well-being, negative EA partner effects were stronger than actor effects. This finding further aligns with the support function offered by negative EA. Through understanding the partner's negative affect accurately, the perceiver can better map out steps to improve the situation or to demonstrate unity between partners in a stressful period.

Overall, this chapter points to potential directions for research to head toward in the future. We-talk did not seem to relate to EA reliably after combining across a multitude of contexts. However, this does not mean the association does not exist. Rather, it may exist in specific contexts such as in support contexts or it may be the foundation that leads to EA, but does not concurrently occur with EA. Negative EA in particular was highly related to well-being. This demonstrates the utility of everyday understanding of negative situations between partners. EA seems to not relate to individual-level word use, but does relate to individual-level well-being. In the next chapter, I conduct similar analyses at the couple-level to understand similarities and difference between levels of analysis.

Chapter III: Language Style Matching, Empathic Accuracy, and Well-Being

Language Style Matching (LSM) is a characteristic of the couple that may mirror the components of EA. EA is the feeling of another's emotions or the ability to understand the internal states of a target in an accurate way; this could be happening as partners match in behaviors such as word use. Studies have explored these avenues of empathy and have shown how non-verbal behaviors such as posture and eye-gaze (Brown-Schmidt & Tanenhaus 2008), cognition (Clark & Brennan, 1991), or affect (Hartfield, Cacioppo, & Rapson, 1993) can match between partners. This same concept has been applied to other non-verbal cues that may indicate affect or cognition such as tones (Giles, Coupland, & Coupland, 1991). However specific word use matching has only more recently made it into the purview of psychological research as language style matching (Neiderhoffer & Pennebaker, 2002).

Communication Accommodation Theory (CAT) explains why language may match between partners (Giles et al., 1991). The amount of similarity between partners may signal attitudes toward the other. LSM may indicate similarity in cognitive functioning between individuals. Cognitive functioning can be reflected in individual language use, particularly with the use of function words (Chung & Pennebaker, 2007). If individuals use similar function words, they may perceive situations and others like-mindedly. Similarity can demonstrate implicitly the amount of engagement one desires to have with others (e.g., those in the same in-group desire to engage with one another). Conversely, when individuals are engaged in a conversation, they may process the information similarly and consequently use the same words.

LSM likely reflects how individuals relate to each other interpersonally. According to CAT, individuals want to create and maintain positive social identities and, as such, largely unconsciously use similar words as their conversational partner (Giles & Ogay, 2007). Closer individuals, especially if they affiliate in the same group (e.g., women may affiliate more with other women compared to men), will match more than less close individuals or those that have negative experiences with their partner. When individuals match in word use, they are accommodating the other and more likely have positive intentions toward the partner. Though these processes are important for all dyads (e.g., parent-child; Borelli, Ramsook, Smiley, Bond, West, & Buttitta, 2017), they may be especially important within romantic relationships because of the well-documented tie between quality of relationships and well-being.

Language Style Matching and Well-Being

LSM is typically assessed in real-time dyadic conversations to understand how it relates to well-being. For this reason, most work has focused on interpersonal outcomes of well-being surrounding the relationship rather than individual well-being constructs. For example, LSM predicted the initiation and stability of romantic relationships from a conversation between two different-gender strangers during a speed-dating event (Ireland, Slatcher, Eastwick, Scissors, Finkel, & Pennebaker, 2011). In this case, LSM indicated shared social knowledge (e.g., they perceive the world similarly or they have had similar past experiences), which can be a foundation for foundation for relationships to form. However, in a separate study looking at conflict discussions between dating couples, LSM was related to less positive emotions and less support and care between

partners (Bowen, Winczewski, & Collins, 2017). LSM may have indicated a shared argumentative attitude rather than shared perspectives that may have led to conflict resolution.

Well-being is likely tied to LSM because of the shared reality conversational partners have. Partners tend to become attracted, and maintain attraction, to one another when they are similar to one another. Partners can be similar to one another in feelings and practices, eventually coordinating their lives together and sharing an identity (Rossignac-Milon & Higgins, 2018). When sharing a reality together, partners are close, allowing for more understanding. Understanding between partners can lead to better conflict resolution, allowing for higher quality relationships (Shulman, Tuval-Mashiach, Levran, & Anbar, 2006). In this way, LSM parallels a similar supportive process as EA.

LSM and Empathic Accuracy

LSM is most analogous to EA because they are both a form of mimicry. Constructs such as emotions, beliefs, and behaviors are transferable and are often mimicked between individuals, particularly when there is liking and attraction (e.g., with romantic couples; Gonzalez, Hancock, & Pennebaker, 2010). This contagion effect of mimicry can occur both nonverbally and verbally; LSM reflects the latter. Empathy shares this contagion effect most commonly through emotions (i.e., emotional contagion or primitive empathy; Hatfield, Cacioppo, & Rapson, 1993). This is not a new concept as researchers have argued a perception-behavior link wherein if individuals perceive the other person accurately they end up behaving in a similar way (e.g., Chartrand & Bargh, 1999). A perception-behavior link may occur when individuals have a desire to affiliate

with one another, such as romantic partners, where they begin to sound like one another (Chartrand & Lakin, 2013; Hatfield, Bensman, Thornton, & Rapson, 2014). Both LSM and EA draw on mimicry as a source of understanding of each other.

Both LSM and EA can reflect a shared understanding between partners. EA is a process by which one understands the other's feelings and thoughts. LSM also has both an affective and cognitive component similar to EA. According to CAT, the affective functioning helps facilitate similarity and consequently likability. It allows couples to form a shared identity, akin to EA and we-talk. The cognitive function aids comprehension between partners. When partners match in language, they are more likely to have a fluid conversation that allows for more understanding or comprehension of each other's thoughts than when partners do not match in language. When couples have high LSM, they are likely more engaged in the conversation which can allow them to understand the other partner's emotions and thoughts.

Additionally, just like EA, there are occasions where the partners diverge from each other in their language instead of converge. Divergence also is hypothesized by CAT, just as less EA is hypothesized by the EA model—both depending on partners' motivation. Partners' motivation may decrease when in negative situations. When there is support between the partners, LSM will likely increase as the partners have liking toward each other and want to understand each other. However, when there is no support, there may be less of a drive to want to understand the partner which may either result in no association between LSM and EA or, potentially, a negative association (e.g., if partners

are arguing and giving negative support, the partners may not want to associate with one another reducing the similarity and the understanding between them).

Hypotheses

LSM and EA parallel each other and should be examined together as such. Since both hold convergent and divergent as well as cognitive and emotional facets, the present chapter will explore the magnitude of association between these two constructs. All examinations of LSM included four categories of LSM: cognitive, positive emotion LSM, negative emotional LSM, and general emotional LSM. Cognitive LSM is the traditional LSM used in the aforementioned studies, which tracks the similarity of word categories that reflect individuals' perspectives. I also created emotional LSM categories which will track the similarity of emotion words between partners. Additionally, I explored their associations with well-being. As with we-talk, emotional similarity and relationship length may influence these associations and were statistically controlled for in these analyses.

H1. Overall, I hypothesize that there will be a positive relationship between LSM and positive and negative EA.

H2. In general, I predict LSM and positive and negative EA both relate positively to well-being (i.e., individual well-being and relationship satisfaction).

Method

Participants and Procedure

Please see the Chapter I Method.

Measures

Individual well-being, relationship satisfaction, positive and negative EA, and positive and negative emotional similarity will be the same as in Chapter I.

Language style matching. There are four categories of LSM that will be calculated: cognitive and positive, negative, and general emotion. All versions of LSM used the equation, $LSM_{Category} = (Category_1 - Category_2) / (Category_1 - Category_2 + .00001)$, where the subscripts 1 and 2 denote the two individual partners. Cognitive LSM was calculated using the equation and averaging the ratio of the percentage of nine individual word categories: personal pronouns, impersonal pronouns, articles, auxiliary verbs, common adverbs, prepositions, conjunctions, negations, and quantifiers. This is considered cognitive LSM because these word categories reflect structural components of the sentences that are linked to attention and perspective-taking. Emotion LSM follows the same equation except only for two word categories: positive and negative emotion. Examples of words from the positive emotion category are “good,” “well,” and “happy”, while examples from negative emotion includes “sad,” “mad,” and “anxious.” Three separate emotion LSM categories were formed due to their reflection of emotions that were expressed: positive emotion, negative emotion, and general emotion (i.e., a combination of positive and negative emotion categories).

Data Analytic Plan

Descriptive statistics. Analogous to the plan indicated in this section for Chapter II, I will begin with descriptive statistics to understand the uniformity of responses between partners.

Correlations. Because all variables will be at the dyad level compared to the individual level, more correlations will be conducted to understand any significant patterns that emerge across dyads. The correlations will also be used to create regression equations relating the latent variables together.

Common fate model. When relating dyad-level constructs where two separate individual, but nonindependent, responses are measured, a Common Fate Model (CFM) is applied. The CFM allows both romantic partners' observed variables to be used together to create a latent variable that depicts both individuals' responses (e.g., couple-level relationship satisfaction is derived from both partners' individually measured relationship satisfaction). The CFM also allows for indistinguishable couples (i.e., couples where individuals are not meaningfully different, such as same-gender couples) to be analyzed. This statistical method was used for both hypotheses 1 and 2.

Results

Descriptive Statistics

Descriptive statistics are presented in Table 12. On the whole, partners matched with each other on each of the LSM categories: cognitive, positive emotion, negative emotion, and general emotion. Negative emotion LSM had the lowest matching score between partners, though it was still large. This category also had the most variability between couples compared to the other LSM categories. Because LSM and the analyses conducted with LSM were at the couple level, Tables 12 and 14 also depict all of the variables of interest at this level of analysis rather solely the individual level.

Correlations

All correlations between EA and LSM are presented in Table 12. Table 13 contains correlations with well-being correlated with EA and LSM. This table is also replicated as Table 14 at the couple level. Starting with interrelations between LSM categories, if couples were high in LSM for one category, they were likely also high on all other categories. The relation between cognitive LSM and the emotion LSM categories was moderate and stronger than the relation between positive emotion LSM and negative emotion LSM. Both positive and negative emotion LSM were strongly positively correlated with the general emotion LSM, as they are both subsets of this category.

When relating LSM to individual EA, a few patterns of results arose. Positive emotion LSM negatively related to both positive EA and negative EA. A combination of both positive and negative emotion LSM yielded a negative correlation with negative LSM. Neither cognitive LSM, nor negative emotion LSM reliably related to either positive or negative EA.

LSM also related to well-being constructs. Particularly, subjective happiness negatively, and consistently, related to all of the LSM constructs. On the opposite side, depressive symptoms were also positively related to the emotional LSM categories, but not to cognitive LSM. One more correlation of note was between positive emotion LSM and positive affect, which was a small, but negative correlation. Surprisingly, negative affect did not relate strongly enough to any of the LSM categories, though all of the correlations were in the same direction as the depressive symptoms.

Couple-level correlations were also conducted to mirror the common fate models. Positive EA and positive emotion LSM were negatively correlated. A positive correlation between positive EA and negative emotion LSM was revealed as well. Negative EA also potentially negatively related to positive emotion LSM, though the effect size was smaller and the *p*-value was larger than when related to positive EA. All other couple-level correlations between EA and LSM were small in magnitude with large *p*-values. Depressive symptoms negatively related with positive EA and negative EA, though the effect was stronger with negative EA. Positive LSM also related with depressive symptoms, but positively. Positive affect positively related to negative EA and negatively related to positive LSM. Negative affect related negatively to both types of EA only and not reliably to LSM. Subjective happiness had the most consistent relations to EA and LSM, reliably relating to all of them except for positive EA. Surprisingly, all correlations were negative when with the four LSM categories, and positive with negative EA. The same covariates (i.e., positive and negative emotional similarity and relationship length) were used in the common fate models because of their relation to EA.

Common Fate Models

Tables 15-18 portray all of the estimates for the common fate models with and without covariates. Positive emotion LSM most strongly predicted positive EA compared to the other types of LSM. However, the association was negative and not hypothesized. All estimates other than positive emotion LSM were unreliable with large confidence intervals around the estimates. For predicting negative EA, cognitive LSM was the only potential likely predictor, as there was a strong, positive relation between the two

constructs. All other estimates were not large enough and held high p -values, making them possibly spurious relations.

It is unlikely that any of the LSM categories reliably predict the well-being outcomes. One potential association, though small in magnitude, is the positive relation between negative emotion LSM and negative affect. This finding converged with the well-being of the couple. There was a positive association between negative emotion LSM and relationship satisfaction. Cognitive LSM also positively predicted relationship satisfaction, though there was a large range of potential estimates as seen in through the confidence interval.

Positive EA mirrored the results from negative LSM, though to a lesser extent (Table 19). Positive EA negatively related to NA. Positive EA also positively related to relationship satisfaction. On the other hand, and consistent with Chapter II, negative EA consistently and strongly related to all of the individual well-being outcomes and relationship satisfaction in the positive direction (Table 20). The strongest association was between negative EA and depressive symptoms.

Covariates were then added to the models. After accounting for relationship length and emotional similarity, cognitive LSM was a better predictor of both positive EA and negative EA compared to all other LSM categories. However, positive emotion LSM was still able to reliably predict positive EA. Overall, emotional similarity was the most consistent predictor across all models: positive emotion similarity positively related to positive EA (bs : 0.71-0.80, ts : 2.43-2.72, ps : .007-.02) and negative emotion similarity positively related to negative EA (bs : 0.35-0.47, ts : 3.88-4.33, ps : < .001). Among the

covariates, one more pattern emerged. Relationship length positively associated with negative EA. This occurred regardless of the LSM category also in the model (*bs*: 0.001-0.001, *ts*: 1.33-1.97, *ps*: .19-.05).

Discussion

This chapter sought to associate LSM and EA with each other and with couple-level well-being and relationship satisfaction. Overall, LSM was not a reliable predictor of EA or couple-level well-being and relationship satisfaction. Instead, negative EA most strongly and consistently related to these well-being outcomes. Although previous research often supports associations between LSM, EA, and well-being and relationship satisfaction, the context of those studies are vastly different than the context of the current dissertation. Due to these distinctions, results seem to depart from theory.

Theoretically, LSM and EA should align with one another. According to the CAT, conversation quality is a function of the extent to which two individuals like one another or are attracted to one another (Giles et al., 1991). Therefore, conversations will be more fluid when dyads are in committed relationships. However, LSM is also about connecting with the other which can be a motivated process. Committed couples have already connected and may not always feel the need to actively connect more with their partner during their everyday routines. For example, if one partner is focusing on a certain task and then their partner comes into the same room and starts talking, there may be a disconnect in LSM between partners—even in the highest quality relationships. The first individual may not stop to talk to their partner because their focus is elsewhere and not on the conversation at hand. One other point may clarify why LSM and EA did not

relate in the current study. LSM has historically been examined in the context of direct and typically full-length conversations. Perhaps in having directed conversations in full can allow for the subtle effects of LSM to be recognized. A few methodological considerations will help further elucidate this point.

Language Style Matching, Empathic Accuracy, and Well-Being

First, and regardless of the methodological considerations, LSM and EA did still relate in a few instances. Positive emotion LSM negatively related to positive EA both with and without covariates in the model. The reason for this negative relationship is not well understood and was not hypothesized. One potential line of research could further investigate this unexpected finding by delving into the association between positive emotion LSM and positive affect. In the current sample, a negative relation occurred. This may indicate that the positive emotion LSM is not necessarily capturing positive affect, but it could capture the opposite. For example in this sample, a participant could match on either saying the word “good” or the phrase “not good.” Both instances would reveal the same LSM score. In reality, however, these have the opposite meaning. There is partial support for this as positive emotion words negatively related to positive affect, indicating that these words may not reflect positive affect, but rather the opposite. Future research needs to more distinctly attend to context to understand what is actually matching between partners.

Negative EA was best predicted by cognitive LSM. EA, and perhaps especially negative EA, could be a motivated process that is effortful. When an individual sees a partner in distress, a common reaction is to support them by helping them overcome the

distress or by validating their emotions—both of which are functions of EA (e.g., Verhofstadt et al., 2008). When couples are matching on their cognitive word use, it could reflect a shared perspective. This shared perspective may have come about through more effortful listening and wanting to understand the partner to help them. However, partners can also match in language when their perspectives are at odds with one another. For example, one study found that in arguments where partners are not agreeing, LSM also increased as a potential sign of engagement rather than shared perspective (Bowen et al., 2017). It is uncertain as to whether LSM reflects the shared perspective or the engagement in argument.

Potentially LSM can reflect both routes in the current sample. There was a positive relationship between cognitive LSM and relationship satisfaction that speaks to both potential routes. Most directly, a shared perspective between partners, reflected by more cognitive LSM, is a marker of high-quality relationships that stay together (Ireland et al., 2011). When couples have similar word use partners tend to be connected and maintain positive views of each other. Another route, though indirect, could be through conflict and conflict resolution while matching in language. Conflicts between partners can potentially lead to more relationship satisfaction. Conflict in it of itself can lead to negativity, individually and interpersonally (Van Lange & Rusbult, 2011). Yet, the resolution of conflict may engender satisfaction as well. Through this indirect path, if partners are arguing in an engaged manner, they may end up reaching a resolution rather than if the argument is curt and cold, leading to one partner stonewalling or avoiding the conflict outright (Rusbult & Van Lange, 2008). LSM may lead to positivity matching

between partners or to better conflict resolution and both of these routes would positively relate to relationship satisfaction.

At the couple-level, positive EA and negative EA were reliably associated with well-being and relationship satisfaction. As in Chapter II, negative EA most strongly related to outcomes. This falls in line with the previous argument that focusing on negativity and being an understanding and supportive partner, potentially through being accurate, may be more important for outcomes than understanding each other's positive affect. However, both aspects are valuable in romantic relationships and individual well-being.

Methodological Considerations

A few methodological considerations should be explored in understanding the current study. My sample contained partners in committed romantic relationships. If LSM is in the service of connecting with others, then the effects of LSM may not be strong. This does not mean that LSM does not occur in committed relationships. On the contrary, LSM was high on average, with almost near perfect matching between some partners in this sample. Rather, LSM may not be the best predictor of EA or other well-being outcomes once partners have reached this stable stage within the relationship. On a day-to-day basis, other constructs such as conflict and conflict resolution or external stress may better predict well-being and relations to EA. Therefore, the effect of LSM may be too subtle to capture in daily life.

The EAR may not be the best method to capture LSM. Usually in LSM studies, both sides of the conversation and the conversation in full are recorded to analyze.

However, in an EAR study, despite the researchers' best intentions and efforts, the clips that are recorded may not match completely across both partners. For example, if the times were offset by one minute, then the conversation transcribed in one clip may be slightly or even vastly different than the partner's clip. The conversation may have switched in valence or in topic. It may have shifted from one person leading the conversation to the other person leading the conversation. This may especially be important to note in the calculations for emotional LSM categories. A clip for one partner may have been positive, potentially leading to more positive words being used, while the analogous clip for the partner may have been negative, leading to more negative words being used. This would create a mismatch without knowing if the mismatch is created as an artifact of the data or if there is a true mismatch between partners. Cognitive LSM on the other hand may not be as susceptible to these fluctuations given that there is likely a patterned way that individuals perceive information and structure sentences on the whole.

This caveat of timing also pertains to EA. Partners did not complete EMAs at the exact same time as partners were both randomly messaged through the day to reduce expectation effects that may bias the responses. Consequently, the time that partner 1 may have reported their own affect could be at a different time than when partner 2 reported their perception of partner one's affect. If this was the case, then EA scores can sometimes be a mismatch because of an artifact of the data rather than because of a true mismatch between partners.

This caveat does not nullify the current results, however. First, EA between partners was still high. This speaks to the timing of the EMA that were sent out. Although

the scheduling for the EMA was randomized, they still occurred at most 2.5 hours of each other. Often, EMAs for each individual were within an hour of each other. Even with this limitation in mind, the randomized EMAs allow for more validity of responses because participants are not aware of when they will receive the text message. This can reduce bias and patterns of response from forming. Future work may still want to randomize EMA for this reason, but within shorter blocks of time to more accurately measure EA.

In conclusion, LSM did relate to EA, though infrequently and not always in the hypothesized direction. Cognitive LSM seemed to be the most reliable predictor of negative EA while positive LSM related to positive EA, though it was a negative relation. This provides partial support for the CAT, though it is necessary for future research to continue testing these associations in different contexts as that may moderate the association. Similar to Chapter II, emotional similarity was the strongest predictor for EA. Moreover, negative EA, though positive EA also, predicted well-being. This further speaks to the supportive nature of EA at the couple-level in everyday life.

Chapter IV: Linguistic Markers of Empathic Accuracy through Naturalistic Data

The current dissertation focused on relating word use to EA because of the conceptual parallels between these two constructs. EA contains both cognitive and emotional aspects. Cognitively, EA is the ability to perceive another individual's thoughts and feelings. Emotionally, EA is the ability to feel another individual's feelings and be in the same emotional state. EA is how individuals can understand one another. Understanding stems from communication. As one communicates to another (i.e., their partner in this case) they are able to understand the thoughts and feelings of the communicator. Though communication can occur in many ways, among the most critical for EA is verbal communication (Gesn & Ickes, 1999; Hall & Schmid Mast, 2007). Word use, in line with EA, also has cognitive and emotional components. Cognitively, word use is the reflection of internal processes; it allows thoughts to become explicitly known. Further, certain words specifically point to cognition taking place, be it the people the individual is attending to through words like pronouns, or the ways they construct a sentence, such as through prepositions. Emotionally, words can express internal feelings and make them explicit. However, word use has never explicitly been used to relate to EA, despite the conceptual parallels. My dissertation begins to bridge the gap between word use and EA, melding together two large corpuses of literature.

Two word use indices were used to relate to EA following the parallels of cognitive and emotional components rife in each of these constructs: we-talk and LSM. We-talk reflects interdependence between partners that can lead to more commitment and effort into the relationship than when partners are less interdependent (Rohrbaugh et al.,

2008; Rusbult & Van Lange, 2008). These commitment processes gain traction for motivated behaviors that will mutually benefit the self and the partner as they are now one unit rather than two separate entities (Aron & Aron, 1991). In order to thrive in the relationship, partners may try with effort to understand the partner and their perspectives—the cognitive aspect of we-talk. Moreover, we-talk may be an indicator of communal coping processes that help individuals engage in behaviors that help the others' negative states together (Lyons et al., 1998). If one partner is feeling negative, the partner will likely understand that and work toward alleviating that negative state—the emotional aspect of we-talk. It follows that we-talk should positively relate to EA. Those that use we-talk may match each other and understand each other.

Perhaps more implicitly, LSM is also a marker of matching between partners, and also follows the same logic of containing cognitive and emotional components. Since the words used reflect internal states such as individuals' cognitions, if two people are matching in the extent to which they are using words, they may perceive the world similarly. Thus, the two would have a better understanding of one another. Words that reflect cognition, such as pronouns and prepositions, also further cement the idea that if individuals are matching on these words, their cognition and perspectives may be similar. Although research has not created LSM variables on categories outside of cognitive words, it would follow that matching on emotion words would also comparably relate to EA. If partners are using the same emotion words, their affective experiences may be more similar than not.

However, this pattern was not reflected in in the current data. Instead, if anything,

the opposite pattern was found for we-talk. More use of we-talk was associated with less EA. The opposite pattern also occurred for positive EA and positive emotion LSM, which was not hypothesized. The only hypothesized association was between cognitive LSM and negative EA. In this chapter, I will focus on the context by which these data were collected and the methodology that may lead to results that, seemingly, run in opposition to previous literature.

Naturalistic Observation and Momentary Assessment

My hypotheses were largely drawn on existing literature. Currently, though shifts toward momentary reports are occurring, methods rely highly on retrospective self-report and in-lab observation of psychological phenomena. Through elaborate study designs and deception, researchers have been able to strongly support the existence of concepts that seem like real-life thoughts and behaviors. Studies do well to mimic naturalistic settings, but still focus on specific constructs while teasing apart related constructs. These allow for clear manipulation of variables and high internal validity in the aim of examining causal mechanisms.

We-talk, LSM and EA studies generally rely on more than self-report measures. When measuring and examining we-talk, a variety of methods have been employed. For example, we-talk was measured in the context of interventions to increase interdependent orientations and was used as an indicator of the increased interdependence (Rohrbaugh et al., 2008). In other studies, participants wrote about their relationships and we-talk was measured through the writing and not an actual conversation (e.g. Frost, 2012). The foundational LSM studies have explored old works by famous authors and psychologists

(Ireland & Pennebaker, 2010) and have used a speed dating paradigm to capture how individuals interact with one another (Ireland et al., 2011). However, no studies have ventured into naturalistic settings to capture how everyday life matching may occur. The same can be said about EA studies. Again, although EA studies are fairly elaborate, they often invite participants to the lab to be recorded. Though valid and reliable, these studies cannot fully replicate a real-life setting and conversation as it may occur if individuals were free to interact as they normally would without instructions and without an artificial setting. A naturalistic setting may very well uproot some of the established findings; this is the crux of why my findings may differ from what was hypothesized.

We-talk in real life can have different functions, uses, and meanings compared to in-lab studies. One of the biggest differences is that in-lab studies ask participants to talk about a specific topic usually, which may never arise in real life. In-lab studies cause a hyper awareness of surroundings, of each other, and of the context of the conversation. Participants may also concentrate more on the words that are spoken, especially when being video and audio-recorded or with an experimenter present. A presentation bias may occur wherein participants do not want to be judged negatively. Whereas this same bias could and likely does occur in naturalistic settings when being recorded through the EAR, it is likely to a lesser degree. Words may be more habitual especially when, for example, two partners are at home after a typical day and are having a natural conversation. Previous work examining how much participants explicitly attend to the EAR while being recorded supports this viewpoint. Approximately 1-2% of sound clips will have participants mention the EAR or an aspect about being recorded after the initial hour of

recording (Mehl, Robbins, & große Deters, 2012). Though this number is low, there is a possibility that participants still may be thinking about the recording aspect without speaking about it. However, I believe this is still a more accurate depiction of real-life compared to in-lab studies. Because of this as well as the motivated cognition surrounding EA, how these two relate in everyday life may differ than how they might in the lab.

One next step would be to bring these interactions and contexts into the lab setting to test this. Perhaps my analyses reflect something true about the relationship between we-talk and EA if lab results also are in the same direction; that is, if in-lab studies also found a negative association between we-talk and EA, then this would add more validity to the current result. However, and more likely, it is within reason to think that we-talk and EA would change depending on the situation, which is what we should be focusing on in the future; context affects both we-talk and EA. For example, there are different types of we-talk which all would likely lead to different associations with EA (Pennebaker, 2011). We-talk depends on what the perceiver wants it to mean. In one instance, it could be a synonym for “you and I.” When talking to a partner, one could be explaining a story where they mean to say “my friends and I” which would also translate to “we.” We-talk could easily be used as a means to direct another person as a politer way to say “you,” rather than truly reflect an interdependent mindset. On the other side, EA is dependent on one’s partner. EA hinges on how expressive the partner is which may be higher or lower in naturalistic settings, again, depending on the context.

We-talk also may have differential effects depending on if it is one individual's feelings and behaviors compared to both feelings and behaviors. For example, if we-talk can reflect prioritizing the relationship because of an interdependent mindset, partners may be more likely to forgo behaviors that constructively help a situation in favor of what may make the partner feel better in the moment; this is referred to as symptom-system fit (Rohrbaugh, Shoham, & Racioppo, 2002). A study exploring couples that eat to cope with stress has evidenced this exact phenomenon (Skoyen, Randall, Mehl, & Butler, 2014). If one partner is currently feeling negative and wants to eat to help regulate the negative emotions, then the other partner may support this eating behavior. This support will reduce negativity in the moment, but it may also cause other health-related issues. Yet, this support may circumvent a potential argument (e.g., one partner telling the other partner to stop eating unhealthily). Because situations were collapsed across two separate weekends, we-talk and EA both may have shifted given the numerous contexts participants may be exposed to at any given instance. Though this dissertation does lend support to an association between we-talk and EA, future studies should carefully consider the contexts in which we-talk is used and EA is performed.

Since word use is context-dependent, LSM is also affected by fluctuations in context. One major context that can shift the meaning of LSM is the source of the stressor and if the stressor is afflicting one or both partners (Bowen et al., 2017). If the source of the stressor is external to the relationship and focuses on one person, then LSM is more likely an indicator of support processes. The perceiver is attuned to the other and using similar words, demonstrating the connection between the two and the motivation to

understand and help. However, if the stressor affects both partners, such as a relationship conflict, then LSM may flip in its directionality. Instead of support, LSM may better approximate critical evaluations of one another in a tit-for-tat interaction style where partners retaliate any slight with one of their own (Axelrod, 1984; Kreps, Milgrom, Roberts, & Wilson, 1982; Rusbult & Van Lange, 2008). In the current dissertation, categories of contexts were not created to distinguish between these more supportive situations where one partner is in need of support compared to situations where both partners are in need of support. Although analyses are all on mean-level responses, effects do still emerge, bolstering the credence of these overall effects.

We-talk and LSM may also be subject to other fluctuations that are particularly relevant for naturalistic studies. Most notably, in real life, individuals do not always use full sentences or speak in a grammatical fashion, excluding words that can be assumed. On the list of words excluded are pronouns which affect both we-talk and LSM estimates. If these estimates are not accurate, the corresponding association with other constructs may also then be biased. In addition to the other fluctuations that occur because of naturalistic studies, the colloquial use of words can change the directionality of hypothesized outcomes (based on in-lab observation findings). For example, we-talk has a generally positive relationship with individual well-being and relationship quality. However, in a naturalistic study we-talk either did not meaningfully relate or negatively related to outcomes (Slatcher, Vazire, & Pennebaker, 2008). The current results are more in line with the Slatcher and colleagues study both in methods as well as associations. Both of these studies allowed participants to talk about whatever they wanted to talk

about, however they wanted to talk about it. Further there was less pressure to conform and the context was more relaxed because no experimenters were also in the room and the recording aspects were less conspicuous compared to in-lab experiments. Though in all studies participants are able to say whatever they want, the context may shape linguistic patterns as a function of how aware of the recording process they are or the proximity of the experimenter. Further, in-lab studies ask participants to discuss certain topics, adding a layer of artificiality to the conversation which may also cause participants to speak more formally during in-lab studies compared to naturalistic ones.

All in all, there are many ways by which naturalistic studies can affect the current data. Given the opposite and sometimes unreliable findings, placing my results in this context rather than in-lab studies help illuminate why hypothesized associations were not found. However, this points to the urgency of conducting more studies in this naturalistic setting compared to in-lab settings to understand how results converge or diverge and what factors moderate the results.

Sample Characteristics and Other Methodological Considerations

The sample used for this dissertation is highly unique. It cuts across many demographics in society that have been understudied. This includes those that are ethnic minorities and sexual minorities—major distinguishing factors about this current sample adding to the representativeness of results and conclusions that can be drawn. Further, a wide spread of relationship lengths and ages of participants were included, tapping into general human psychological phenomena rather than those limited to certain demographics. Additionally, the current study has employed a multimethod approach to

further validate the conclusions drawn either through converging or diverging evidence that is not subject to common method variance (Lindell & Whitney, 2001). The measurements are intensive, adding to the reliability of findings through the use of EAR and EMA. As discussed, these findings are also stemming from a naturalistic study, incorporating a different context compared to in-lab studies to further understand how psychological constructs transfer from in-lab to real world situations.

Although there are many positives to this approach, one potential drawback is the availability of resources to recruit a large sample. This may be problematic given the constructs I targeted for the current dissertation. On average, word use has modest associations with other psychological phenomena. However, word use is a constant in most individuals' lives. Because of the consistency of this effect, these modest effects can potentially have profound effects over the course of a lifetime. The problem that is posed is the initial detection of the effect given all of the potential noise. The signal detection can be low because of the extraneous factors in real-world settings that are not accounted for to the extent they are in lab settings. Primarily, conversations can take many forms and span many topics (i.e., there are many topics that could arise over six separate days of recording two separate individuals). When measuring word use, this can tremendously change how variables relate to one another, though it could give more credibility to the average effects, if any, that emerges.

The addition of both same- and different-gender couples may also shift the results in unknown ways. Most theoretical and empirical work has been conducted with different-gender couples. This has established the existence of and examined the causal

pathways for many important constructs. However, these constructs can play out in vastly different ways depending on individuals' backgrounds. This has been supported in the use of interventions made with evidence from high-quality, high socioeconomic status couples that were then implemented on disadvantaged couples. The interventions did not affect this understudied population in a meaningful way (Karney, Bradbury, & Lavner, 2018). In different-gender couples, perhaps EA has a larger role in well-being and relationship quality compared to same-gender couples. This could be due to a larger disconnect between men and women, so any understanding between partners may be more valuable. Alternatively, we-talk and LSM may occur more often and may hold different meanings in same-gender couples than compared to different-gender couples. Since these are average effects across all couples, the strength of the association could be augmented or attenuated in comparison to in-lab studies. Further lab and experimental studies with more inclusive samples are needed to further understand the links between linguistic markers and EA.

One final consideration for the current study is the way EA was measured. Although this study was naturalistic observation in nature, EMA still prompts participants to think about concepts that they may not otherwise pay attention to. In this study, participants were asked how they were feeling as well as how they think their partner is feeling. It is possible that by assessing this, we brought special attention to their own and their partner's affect that may not have occurred in the absence of the assessment. However, in-lab studies also subject their participants to a similar awareness, as they have to consciously re-watch recorded segments of their own conversation, in a typical

study, and then rate each other's feelings. This forces EA to occur when it may not have occurred without prompting for it. Future research needs to continue exploring implicit measures of constructs that may meaningfully reflect EA to mitigate this issue. By doing so, researchers can gain more clarity about the true extent individuals engage in processes such as EA. Nevertheless, this is still a first step in understanding the frequency of how often EA occurs in everyday life and how it relates to word use, individual well-being, and relationship satisfaction.

Alternatives to We-Talk and LSM

Regardless of if we-talk and LSM are related to EA, there are more categories of words and other behaviors to explore what EA may predict and how to measure EA through implicit measures. As discussed in Chapter II, we-talk may not align with EA because it can be a slightly different process. We-talk may reflect a desire to help with or without truly understanding the other's perceptions and feelings. Linguistically, words such as "I" and "you" may also approximate EA. For example, a statement such as "I feel you" or "I understand you" may be just as likely to predict EA or be a consequence of EA. In neither of these cases is we-talk used. Instead, words such as "I" and "you" may explicitly reflect understanding the partner in-the-moment. Time-series analyses could help unpack this. We-talk may lead to EA or vice versa whereas words such as "I" and "you" may concurrently predict EA on average. An interdependent mindset may also not always be reflected in we-talk, but can also be reflect in use of "I" and "you." This was the case in a study predicting dyadic adjustment (similar to relationship quality) for couples coping with breast cancer. Breast cancer patients can demonstrate

interdependence by relying on their partner and using words such as “you.” Further, spouses can demonstrate interdependence by showing up as needed for the partner and using “I.” Both of these word use categories positively related to dyadic adjustment, potentially showing nuances to interdependence not captured in we-talk (Karan et al., 2016).

As mentioned in Chapter I, there are other synchronizations that occur between dyad members that may also relate to EA. One of the strongest conceptual arguments for EA in the cognitive sense of perspective taking was word use. However, there are other components to empathy such as the directly emotional aspects. Emotional contagion and emotional mimicry are in the same vein as empathy as both individuals are feeling the same emotions. These emotions can be conveyed and transferred nonverbally. In this manner, other nonverbal cues may correspond with this type of empathy. Even in this more purely emotional route, there is still an accuracy component. One could have empathic concern or sympathy where that individual has a reaction to the other’s emotion but does not necessarily match in their emotional state. This may lead to a separate process, set of cognitions and downstream behaviors. In contrast, two individuals may end up feeling the exact same emotion, which would be EA in this case. Contenders for this route are tone of voice, prosody, and behavioral mimicry such as mirrored facial gestures and body position. This converges with another literature of embodied cognition where the individuals’ senses may influence thoughts and feelings (Mahon, 2015). If partners are similar in these behaviors, then their feelings may be similar.

Conclusions

This dissertation aimed to bring together separate, but parallel, literatures to better understand the relationship between EA and word use. By using a naturalistic study design and diverse sample with intensive measures, I have incrementally increased external and ecological validity while retaining high internal consistency within the study. Though not all of the hypotheses garnered support, meaningful relations between we-talk and EA and LSM and EA were revealed. Namely, we-talk negatively related to own EA, but positively to partner's EA. Positive emotion LSM may have a negative relation to positive EA, while cognitive LSM may have a positive relation to negative EA. Negative EA, in particular, consistently related to individual well-being and relationship satisfaction, supporting a need to continue examining this construct. Emotional similarity between partners often was the best predictor of EA in this current dissertation. This could denote the potential that is only uncovered in committed relationships; long-term partners often become similar and are similar to begin with leading to a strong understanding of the other's affect. Indeed, partners were both highly emotionally similar and empathically accurate.

Many avenues are opened given the current pattern of results. Further exploration of moderation variables (e.g., context of stressors, sexual orientation, gender, support contexts) may yield stronger effects in light of the context-dependent nature of word use and EA. Further, other word use and nonverbal communication should be examined because of their close ties with EA as well. By continuing to explore this line of research, basic researchers will continue to understand what EA is and practitioners can continue to

understand the best ways to approach support and understanding. These findings should be applied to other contexts outside of romantic relationships such as therapist-client (where research on empathy was first applied) and doctor-patient relationships because of the vast array of translational results revealed in the current dissertation. In time, these findings could help craft interventions after understanding the process by which these constructs are enacted. The importance of being and feeling understood cuts across many societal levels (e.g., class, ethnicity, power dynamics). Understanding the circumstances that instantiate and nullify the potential benefits of EA through word use or other related constructs could help serve society en masse.

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Table 1. Descriptives by Weekend and Correlations Across Weekends

Variables	M(SD)_{w1}	M(SD)_{w2}	<i>r</i>	<i>p</i>	ICC
Positive Empathic Accuracy	0.91(0.45)	0.75(0.45)	.23	.009	.35
Negative Empathic Accuracy	0.76(0.62)	0.69(0.63)	.41	< .0001	.33
We-Talk	1.12(0.54)	1.13(0.57)	.19	.04	.24
Depressive Symptoms	18.61(5.99)	19.27(6.82)	.53	< .0001	.40
Positive Affect	3.64(0.75)	3.55(0.74)	.67	< .0001	.16
Negative Affect	1.84(0.66)	1.76(0.60)	.53	< .0001	.29
Happiness	4.94(0.74)	4.86(0.72)	.49	< .0001	.07
Relationship Satisfaction	40.75(4.82)	40.68(4.79)	.80	<.0001	.54

Note. W1 = Weekend 1 of recording. W2 = Weened 2 of recording.

Table 2. Descriptives and Correlations for We-Talk Analyses

Variable	M (SD)	r	1	2	3	4	5	6	7	8	9	10	11
1. Pos. EA	0.82 (0.38)	r	.31	.31	-.02	-.14	.06	-.17	.04	.19	-.39	-.25	<.001
		p	.008	<.001	.86	.08	.51	.04	.63	.02	<.001	.002	.96
2. Neg. EA	.71 (.54)	r	.22	.34	-.08	-.27	.16	-.28	.19	.14	-.28	-.57	.29
		p	.06	.004	.36	.001	.06	.001	.02	.10	.001	<.001	.001
3. We-Talk	1.15 (.49)	r	-.02	-.02	.71	-.09	.04	-.09	-.03	.16	<.001	-.04	.07
		p	.85	.82	< .001	.27	.61	.27	.70	.06	.98	.62	.44
4. Depr. Symp.	18.92 (5.47)	r	-.14	-.36	-.10	.39	-.34	.60	-.30	-.16	.21	.25	-.19
		p	.08	<.001	.23	< .001	<.001	<.001	<.001	.05	.01	.002	.02
5. Pos. Affect	3.57 (.68)	r	.09	.32	<.001	-.20	.15	-.39	.58	.25	<.001	-.15	.10
		p	.28	<.001	.99	.02	.06	<.001	<.001	.002	.99	.07	.24
6. Neg. Affect	1.8 (.56)	r	-.17	-.51	-.08	.23	-.19	.29	-.29	-.22	.19	.40	-.31
		p	.04	<.001	.36	.005	.02	< .001	<.001	.007	.02	<.001	<.001
7. Happiness	4.92 (.63)	r	.04	.20	-.16	-.13	.16	-.14	.06	.17	-.03	-.14	.14
		p	.66	.02	.06	.12	.04	.09	.45	.03	.76	.09	.11
8. Rel. Sat.	40.72 (4.81)	r	.25	.22	.10	-.09	.14	-.06	.03	.54	-.10	-.17	.15
		p	.002	.009	.24	.28	.09	.46	.75	< .001	.24	.05	.07
9. Pos. Emo. Sim.	3.02 (.45)	r	-.45	-.31	.07	.22	-.03	.23	.02	-.10	-	.52	.01
		p	<.001	<.001	.40	.008	.73	.007	.83	.24	-	<.001	.93
10. Neg. Emo. Sim.	3.23 (.67)	r	-.26	-.58	-.03	.22	-.12	.38	-.08	-.17	.49	-	-.29
		p	.002	<.001	.73	.008	.16	<.001	.34	.05	<.001	-	.001
11. Rel. Length	91.72 (101.56)	r	<.001	.29	.07	-.19	.10	-.31	.14	.15	.01	-.29	-
		p	.96	.001	.44	.02	.24	<.001	.11	.07	.93	.001	-

Note. Correlations above the diagonal are actor correlations, below diagonal are partner correlations, and on the diagonal (bolded) are actor-partner correlations for the same variable. Pos. = Positive. Neg. = Negative. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction

Table 3. We-talk predicting Empathic Accuracy (EA) with Covariates

Pos. EA	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
We-Talk (actor)	-0.04	0.07	-0.52	.60	-0.17,0.10
We-Talk (partner)	0.01	0.10	0.10	.92	-0.18,0.20
Pos. Emo. Sim.	0.27	0.12	2.38	.02	-0.05,-0.50
Neg. Emo. Sim.	0.06	0.06	0.89	.37	-0.07,0.18
Rel. Length	< 0.001	< 0.001	-0.50	.62	0.00,0.00
Neg. EA					
We-Talk (actor)	-0.11	0.13	-0.88	.38	-0.36,0.14
We-Talk (partner)	0.02	0.15	0.12	.91	-0.27,0.31
Pos. Emo. Sim.	0.17	0.11	1.58	.12	-0.04,0.39
Neg. Emo. Sim.	0.36	0.08	4.37	<.001	0.20,0.53
Rel. Length	< 0.001	< 0.001	2.03	.04	0.00,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 4. We-talk Predicting Negative Well-Being with Covariates

Neg. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
We-Talk (actor)	-0.14	0.09	-1.53	.13	-0.32,0.04
We-Talk (partner)	0.08	0.10	0.80	.42	-0.12,0.28
Pos. Emo. Sim.	-0.15	0.12	-1.20	.23	-0.38,0.09
Neg. Emo. Sim	-0.22	0.07	-3.37	<.001	0.34,0.09
Rel. Length	< 0.001	< 0.001	-3.22	<.001	0.00,0.00
Depressive Symptoms					
We-Talk (actor)	-1.38	0.88	-1.56	.12	-3.11,0.35
We-Talk (partner)	0.78	1.00	0.78	.44	-1.17,2.73
Pos. Emo. Sim.	-2.48	0.84	-2.96	.001	-4.13,0.84
Neg. Emo. Sim	-0.58	0.67	-0.87	.39	-1.90,0.73
Rel. Length	-0.01	< 0.001	-2.75	.01	-0.01,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 5. We-talk Predicting Positive Well-Being with Covariates

Pos. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
We-Talk (actor)	0.14	0.14	0.99	.32	-0.13,0.41
We-Talk (partner)	-0.22	0.13	-1.68	.09	-0.49,0.04
Pos. Emo. Sim.	0.01	0.13	0.08	.94	-0.24,0.26
Neg. Emo. Sim	0.09	0.10	0.87	.38	-0.11,0.28
Rel. Length	< 0.001	< 0.001	1.34	.18	0.00,0.00
Happiness					
We-Talk (actor)	-0.10	0.11	-0.90	.37	-0.30,0.11
We-Talk (partner)	-0.12	0.11	-1.18	.24	-0.33,0.08
Pos. Emo. Sim.	-0.09	0.12	-0.79	.43	-0.21,0.14
Neg. Emo. Sim	0.09	0.08	1.07	.29	-0.07,0.24
Rel. Length	< 0.001	< 0.001	1.81	.07	0.00,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 6. We-talk Predicting Relationship Satisfaction with Covariates

Rel. Sat.	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
We-Talk (actor)	0.52	0.97	0.53	.59	-1.39,2.43
We-Talk (partner)	0.53	1.05	0.51	.61	-1.52,2.58
Pos. Emo. Sim.	-0.62	1.23	-0.50	.62	-3.03,1.79
Neg. Emo. Sim	1.09	0.56	1.96	.05	0.00,2.19
Rel. Length	0.01	< 0.001	1.89	.06	0.00,0.01

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 7. Pos. Empathic Accuracy Predicting Neg. Well-Being with Covariates

Neg. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA (actor)	-0.05	0.14	-0.38	.70	-0.33,0.23
Pos. EA (partner)	-0.09	0.11	-0.83	.41	-0.31,0.13
Pos. Emo. Sim.	-0.04	0.13	-0.30	.77	-0.30,0.22
Neg. Emo. Sim	-0.24	0.08	-3.09	<.001	-0.39,0.90
Rel. Length	< 0.001	< 0.001	-2.22	.03	0.00,0.00
Depressive Symptoms					
Pos. EA (actor)	0.22	2.02	0.11	.91	-3.73,4.17
Pos. EA (partner)	-0.29	1.67	-0.17	.86	-3.55,2.98
Pos. Emo. Sim.	-2.37	1.42	-1.67	.10	-5.15,0.42
Neg. Emo. Sim	-0.66	0.97	-0.69	.49	-2.56,1.24
Rel. Length	-0.01	< 0.001	-2.01	.04	-0.01,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 8. Pos. Empathic Accuracy Predicting Pos. Well-Being with Covariates

Pos. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA (actor)	-0.10	0.19	-0.52	.60	-0.17,0.1
Pos. EA (partner)	0.14	0.19	0.73	.47	-0.18,0.2
Pos. Emo. Sim.	0.03	0.20	0.13	.90	-0.5,-0.05
Neg. Emo. Sim	-0.13	0.16	-0.78	.44	-0.18,0.07
Rel. Length	< 0.001	< 0.001	0.86	.39	0.00,0.00
Happiness					
Pos. EA (actor)	0.16	0.22	0.72	.47	-0.27,0.58
Pos. EA (partner)	-0.06	0.18	-0.32	.75	-0.41,0.29
Pos. Emo. Sim.	0.12	0.20	0.61	.55	-0.27,0.51
Neg. Emo. Sim	-0.09	0.13	-0.69	.49	-0.34,0.16
Rel. Length	< 0.001	< 0.001	1.47	.14	0.00,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 9. Neg. Empathic Accuracy Predicting Neg. Well-Being with Covariates

Neg. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Neg. EA (actor)	-0.30	0.07	-4.30	<.001	-0.44,-0.17
Neg. EA (partner)	-0.17	0.09	-1.91	.06	-0.34,0.01
Pos. Emo. Sim.	0.08	0.14	0.55	.58	-0.2,0.35
Neg. Emo. Sim	0.06	0.08	0.79	.43	-0.09,0.22
Rel. Length	< 0.001	< 0.001	-1.87	.06	0.00,0.00
Depressive Symptoms					
Neg. EA (actor)	-2.45	1.12	-2.19	.03	-4.63,-0.26
Neg. EA (partner)	-2.71	0.93	-2.91	.001	-4.53,-0.88
Pos. Emo. Sim.	-1.95	1.12	-1.75	.08	-4.13,0.24
Neg. Emo. Sim	1.45	1.13	1.29	.20	-0.76,3.65
Rel. Length	< 0.001	< 0.001	-1.16	.25	-0.01,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 10. Neg. Empathic Accuracy Predicting Pos. Well-Being with Covariates

Pos. Affect	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Neg. EA (actor)	0.35	0.16	2.16	.03	0.03,0.66
Neg. EA (partner)	0.26	0.14	1.85	.06	-0.02,0.54
Pos. Emo. Sim.	0.05	0.19	0.28	.78	-0.32,0.42
Neg. Emo. Sim	0.12	0.14	0.83	.41	-0.16,0.40
Rel. Length	< 0.001	< 0.001	0.11	.92	0.00,0.00
Happiness					
Neg. EA (actor)	0.21	0.13	1.54	.12	-0.06,0.47
Neg. EA (partner)	0.22	0.13	1.79	.07	-0.02,0.47
Pos. Emo. Sim.	0.11	0.16	0.67	.51	-0.21,0.43
Neg. Emo. Sim	0.08	0.13	0.57	.57	-0.18,0.34
Rel. Length	< 0.001	< 0.001	0.77	.44	0.00,0.00

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 11. Empathic Accuracy Predicting Rel. Satisfaction with Covariates

Rel. Satisfaction	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA (actor)	1.15	1.52	0.76	.45	-1.83,4.13
Pos. EA (partner)	0.59	1.56	0.38	.71	-2.47,3.64
Pos. Emo. Sim.	0.39	1.50	0.26	.80	-2.56,3.33
Neg. Emo. Sim	0.50	0.76	0.66	.51	-0.99,2.00
Rel. Length	0.01	0.001	1.70	.09	0.00,0.01
Rel. Satisfaction					
Neg. EA (actor)	0.95	0.86	1.11	.27	-0.73,2.63
Neg. EA (partner)	0.30	0.96	0.31	.75	-1.58,2.18
Pos. Emo. Sim.	1.17	1.34	0.88	.38	-1.46,3.81
Neg. Emo. Sim	0.39	0.78	0.51	.61	-1.13,1.92
Rel. Length	0.01	0.001	1.58	.12	0.00,0.01

Note. Pos. = Positive; Neg. = Negative; Emo. = Emotional; Sim. = Similarity; Rel. = Relationship

Table 12. Descriptives and Correlations for Language Style Matching (LSM) Analyses

Variables	M (SD)	r	1	2	3	4	5	6
1. Pos. EA	0.82 (0.38)	r	.31	.22	-.13	-.32	.04	-.20
		p	.008	.06	.30	.01	.77	.11
2. Neg. EA	0.71 (0.54)	r	.35	.34	-.16	-.24	-.21	-.28
		p	.003	.004	.20	.06	.11	.02
3. Cog. LSM	.88 (.07)	r	.10	-.04	-	.32	.35	.28
		p	.40	.74	-	.01	.003	.02
4. Pos. Emo. LSM	.86 (.07)	r	-.20	-.18	.39	-	.14	.59
		p	.09	.13	.001	-	.24	<.001
5. Neg. Emo. LSM	.75 (.16)	r	.24	-.03	.34	.25	-	.48
		p	.05	.81	.003	.03	-	<.001
6. Gen. Emo. LSM	.88 (.07)	r	.02	-.17	.41	.69	.55	-
		p	.89	.17	<.001	<.001	<.001	-

Note. Correlations above the diagonal are actor correlations, below the diagonal are couple-level correlations, and on the diagonal (bolded) are partner correlations. Pos. = Positive. Neg. = Negative. Gen. = General. Emo. = Emotion. Cog. = Cognitive. EA = Empathic Accuracy.

Table 13. Descriptives and Correlations for Language Style Matching (LSM) Analyses

Variables	M (SD)	r	Pos.	Neg.	Cog.	Pos.	Neg.	Gen.
		p	EA	EA	LSM	Emo.	Emo.	Emo.
						LSM	LSM	LSM
Depr. Symp.	18.92 (5.47)	r	-.21	-.47	.03	.23	.15	.15
		p	.07	<.001	.82	.05	.20	.20
Pos. Affect	3.57 (0.68)	r	.13	.39	-.08	-.18	-.08	-.11
		p	.27	.001	.53	.13	.52	.37
Neg. Affect	1.80 (0.56)	r	-.24	-.61	.10	.07	.12	.13
		p	.04	<.001	.40	.54	.32	.26
Happiness	4.92 (0.63)	r	.05	.32	-.25	-.22	-.27	-.24
		p	.70	.005	.03	.06	.02	.04
Rel. Sat.	40.72 (4.81)	r	.19	.14	.11	-.03	.08	-.16
		p	.02	.10	.18	.69	.34	.05
Pos. Emo. Sim.	3.02 (0.45)	r	-.39	-.35	-.02	.08	.07	.09
		p	.001	.003	.89	.51	.58	.48
Neg. Emo Sim.	3.23 (0.67)	r	-.25	-.70	-.14	.05	.04	.05
		p	.04	<.001	.25	.66	.72	.68
Rel. Length	91.72 (101.56)	r	-.02	.34	-.35	-.14	-.20	-.12
		p	.84	.004	.004	.24	.10	.32

Note. Pos. = Positive. Neg. = Negative. Gen. = General. Emo. = Emotion. Cog. = Cognitive. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 14. Couple-Level Correlations for Language Style Matching (LSM) Analyses

Variables	r	Pos.	Neg.	Cog.	Pos.	Neg.	Gen.
	p	EA	EA	LSM	Emo.	Emo.	Emo.
					LSM	LSM	LSM
Depr. Symp.	r	-.21	-.47	.03	.23	.15	.15
	p	.07	<.001	.82	.05	.20	.20
Pos. Affect	r	.13	.39	-.08	-.18	-.08	-.11
	p	.27	.001	.53	.13	.52	.37
Neg. Affect	r	-.24	-.61	.10	.07	.12	.13
	p	.04	<.001	.40	.54	.32	.26
Happiness	r	.05	.32	-.25	-.22	-.27	-.24
	p	.70	.01	.03	.06	.02	.04
Rel. Sat.	r	.44	.11	.16	-.06	.41	.12
	p	<.001	.35	.19	.59	<.001	.30
Pos. Emo. Sim.	r	-.39	-.35	-.02	.08	.07	.09
	p	.001	.001	.89	.51	.58	.48
Neg. Emo Sim.	r	-.25	-.70	-.14	.05	.04	.05
	p	.04	<.001	.25	.66	.72	.68
Rel. Length	r	-.02	.34	-.35	-.14	-.20	-.12
	p	.84	.004	.004	.24	.10	.32

Note. Pos. = Positive. Neg. = Negative. Gen. = General. Emo. = Emotion. Cog. = Cognitive. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 15. Empathic Accuracy and Well-Being Predicted by Cognitive LSM

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA	0.18	1.81	0.10	.92	-3.36,3.73
Neg. EA	5.02	3.32	1.51	.13	-1.49,11.53
Neg. Affect	0.17	2.46	0.07	.95	-4.66,5.00
Depr. Symp.	19.43	25.55	0.76	.45	-30.65,69.50
Pos. Affect	1.62	3.05	0.53	.60	-4.36,7.61
Happiness	-2.43	3.50	-0.70	.49	-9.29,4.43
Rel. Sat.	34.09	18.74	1.82	.07	-2.64,70.83
With Covariates					
Pos. EA	-1.86	1.24	-1.50	.13	-4.29,0.57
Neg. EA	-0.81	0.47	-1.73	.08	-1.72,0.11
Neg. Affect	3.17	2.82	1.12	.26	-2.36,8.69
Depr. Symp.	27.76	27.78	1.00	.32	-26.68,82.21
Pos. Affect	-1.35	3.41	-0.40	.69	-8.02,5.33
Happiness	-6.94	5.49	-1.26	.21	-17.70,3.83
Rel. Sat.	9.85	13.82	0.71	.48	-17.25,36.94

Note. LSM = Language Style Matching. Pos. = Positive. Neg. = Negative. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 16. Empathic Accuracy and Well-Being Predicted by Pos. Emotion LSM

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA	-1.65	0.92	-1.79	.07	-3.46,0.16
Neg. EA	-0.74	1.74	-0.43	.67	-4.15,2.67
Neg. Affect	-0.58	1.45	-0.40	.69	-3.42,2.27
Depr. Symp.	21.08	18.41	1.15	.25	-15,57.16
Pos. Affect	-1.30	2.17	-0.60	.55	-5.56,2.95
Happiness	-0.28	2.06	-0.14	.89	-4.32,3.75
Rel. Sat.	2.62	12.36	0.21	.83	-21.61,26.85
With Covariates					
Pos. EA	-1.60	1.00	-1.60	.11	-3.55,0.36
Neg. EA	-0.63	0.54	-1.17	.24	-1.69,0.43
Neg. Affect	-0.07	1.59	-0.04	.97	-3.19,3.05
Depr. Symp.	16.27	22.64	0.72	.47	-28.11,60.64
Pos. Affect	0.01	2.18	0.00	1.00	-4.26,4.28
Happiness	-0.76	2.82	-0.27	.79	-6.29,4.77
Rel. Sat.	3.83	12.81	0.30	.77	-21.27,28.94

Note. Pos. = Positive. Neg. = Negative. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 17. Empathic Accuracy and Well-Being Predicted by Neg. Emotion LSM

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA	0.15	0.61	0.24	.81	-1.05,1.35
Neg. EA	-0.67	0.68	-0.99	.32	-2.01,0.66
Neg. Affect	1.02	0.63	1.62	.11	-0.22,2.26
Depr. Symp.	6.53	7.07	0.92	.36	-7.33,20.39
Pos. Affect	0.01	1.08	0.01	.99	-2.09,2.12
Happiness	-1.04	1.02	-1.02	.31	-3.03,0.96
Rel. Sat.	12.68	6.47	1.96	.05	-0.01,25.36
With Covariates					
Pos. EA	-0.50	0.52	-0.95	.34	-1.52,0.53
Neg. EA	-0.24	0.27	-0.90	.37	-0.77,0.28
Neg. Affect	0.05	0.81	0.06	.95	-1.54,1.63
Depr. Symp.	3.55	9.53	0.37	.71	-15.14,22.24
Pos. Affect	-0.28	1.45	-0.19	.85	-3.12,2.56
Happiness	-0.56	1.62	-0.35	.73	-3.72,2.61
Rel. Sat.	8.85	5.42	1.63	.10	-1.78,19.48

Note. Pos. = Positive. Neg. = Negative. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 18. Empathic Accuracy and Well-Being Predicted by General Emotion LSM

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Pos. EA	-0.45	1.21	-0.37	.71	-2.82,1.91
Neg. EA	-0.74	2.09	-0.36	.72	-4.83,3.35
Neg. Affect	-0.40	1.59	-0.25	.80	-3.52,2.71
Depr. Symp.	3.80	19.52	0.20	.85	-34.45,42.05
Pos. Affect	-1.02	2.12	-0.48	.63	-5.17,3.14
Happiness	-0.34	2.11	-0.16	.87	-4.47,3.8
Rel. Sat.	8.32	13.95	0.60	.55	-19.02,35.67
With Covariates					
Pos. EA	-0.95	1.10	-0.86	.39	-3.11,1.21
Neg. EA	-0.93	0.62	-1.51	.13	-2.14,0.28
Neg. Affect	0.27	1.63	0.17	.87	-2.93,3.47
Depr. Symp.	-8.49	21.79	-0.39	.70	-51.2,34.23
Pos. Affect	-0.93	2.11	-0.44	.66	-5.06,3.2
Happiness	0.25	2.60	0.10	.92	-4.84,5.33
Rel. Sat.	-1.03	13.27	-0.08	.94	-27.03,24.98

Note. Pos. = Positive. Neg. = Negative. EA = Empathic Accuracy. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 19. Well-Being Predicted by Positive Empathic Accuracy

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Neg. Affect	-0.83	0.66	-1.25	.21	-2.12,0.47
Depr. Symp.	-6.46	6.70	-0.96	.34	-19.59,6.68
Pos. Affect	0.46	0.89	0.52	.61	-1.28,2.20
Happiness	-0.14	0.72	-0.19	.85	-1.54,1.27
Rel. Sat.	6.25	5.05	1.24	.22	-3.65,16.14
Covariates					
Neg. Affect	-1.53	1.26	-1.21	.23	-4.01,0.94
Depr. Symp.	-10.78	20.28	-0.53	.60	-50.52,28.97
Pos. Affect	1.08	1.41	0.77	.44	-1.68,3.83
Happiness	-0.45	1.28	-0.35	.72	-2.97,2.06
Rel. Sat.	2.83	7.35	0.38	.70	-11.58,17.24

Note. Pos. = Positive. Neg. = Negative. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

Table 20. Well-Being Predicted by Negative Empathic Accuracy

Outcome	<i>b</i>	SE	<i>t</i>	<i>p</i>	95% CI
Neg. Affect	-1.92	0.62	-3.11	.002	-3.12,-0.71
Depr. Symp.	-12.31	4.05	-3.04	.002	-20.25,-4.38
Pos. Affect	1.51	0.69	2.18	.03	0.15,2.87
Happiness	0.68	0.53	1.27	.21	-0.37,1.73
Rel. Sat.	6.17	3.02	2.04	.04	0.25,12.10
Covariates					
Neg. Affect	-2.01	0.77	-2.61	.009	-3.52,-0.50
Depr. Symp.	-11.70	9.49	-1.23	.22	-30.31,6.90
Pos. Affect	-3.35	1.73	-1.94	.05	-6.74,0.03
Happiness	-2.87	1.43	-2.01	.04	-5.67,-0.08
Rel. Sat.	-3.28	6.72	-0.49	.63	-16.46,9.90

Note. Pos. = Positive. Neg. = Negative. Depr. = Depressive. Symp. = Symptoms. Rel. = Relationship. Sat. = Satisfaction.

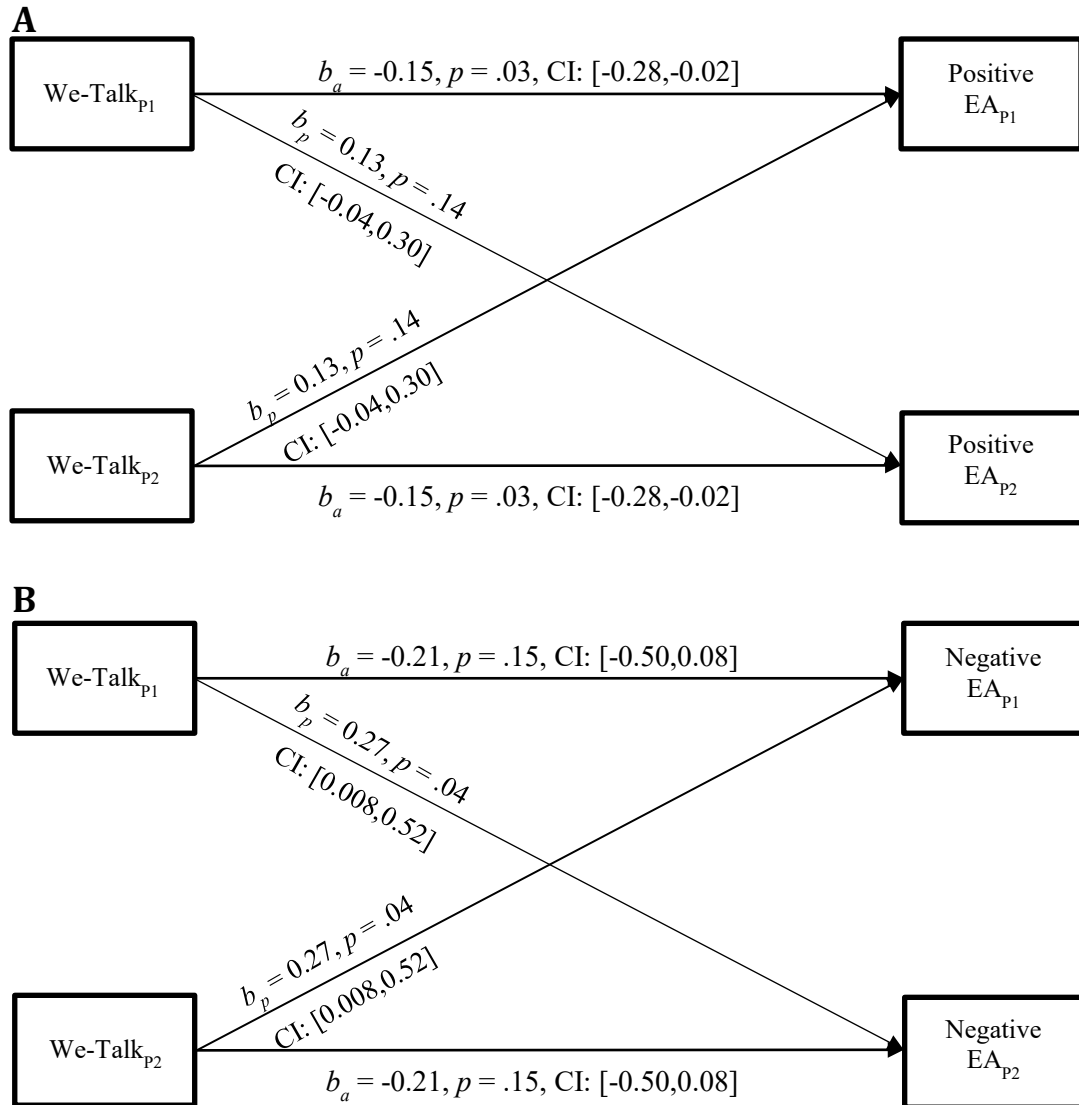


Figure 1. APIM Predicting Empathic Accuracy (EA) from We-Talk. Panel A shows positive EA as the outcome. Panel B shows negative EA as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

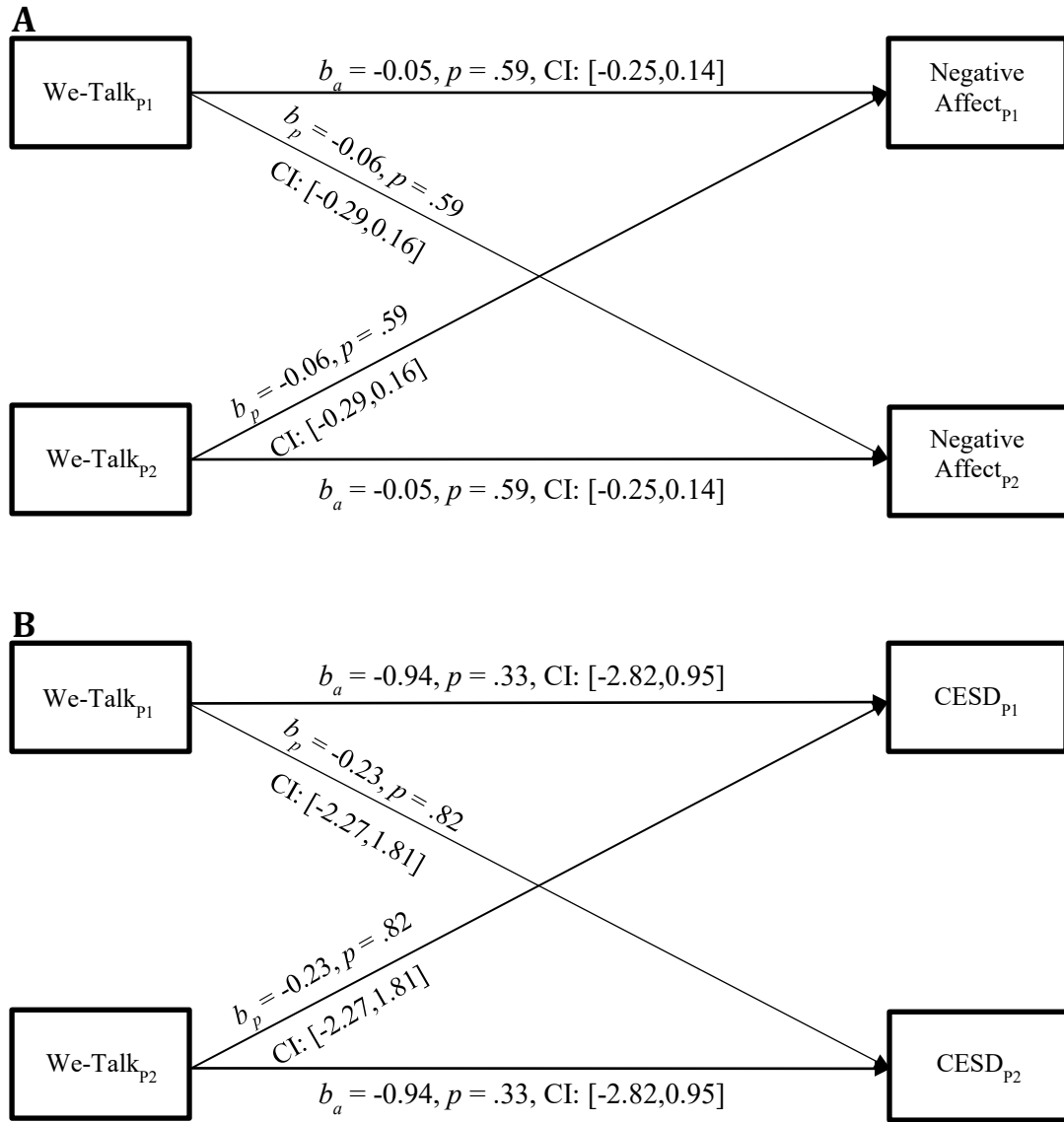


Figure 2. APIM Predicting Negative Individual Well-Being from We-Talk. Panel A shows negative affect as the outcome. Panel B shows depressive symptoms measured by the Center for Epidemiologic Studies Depression (CESD) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

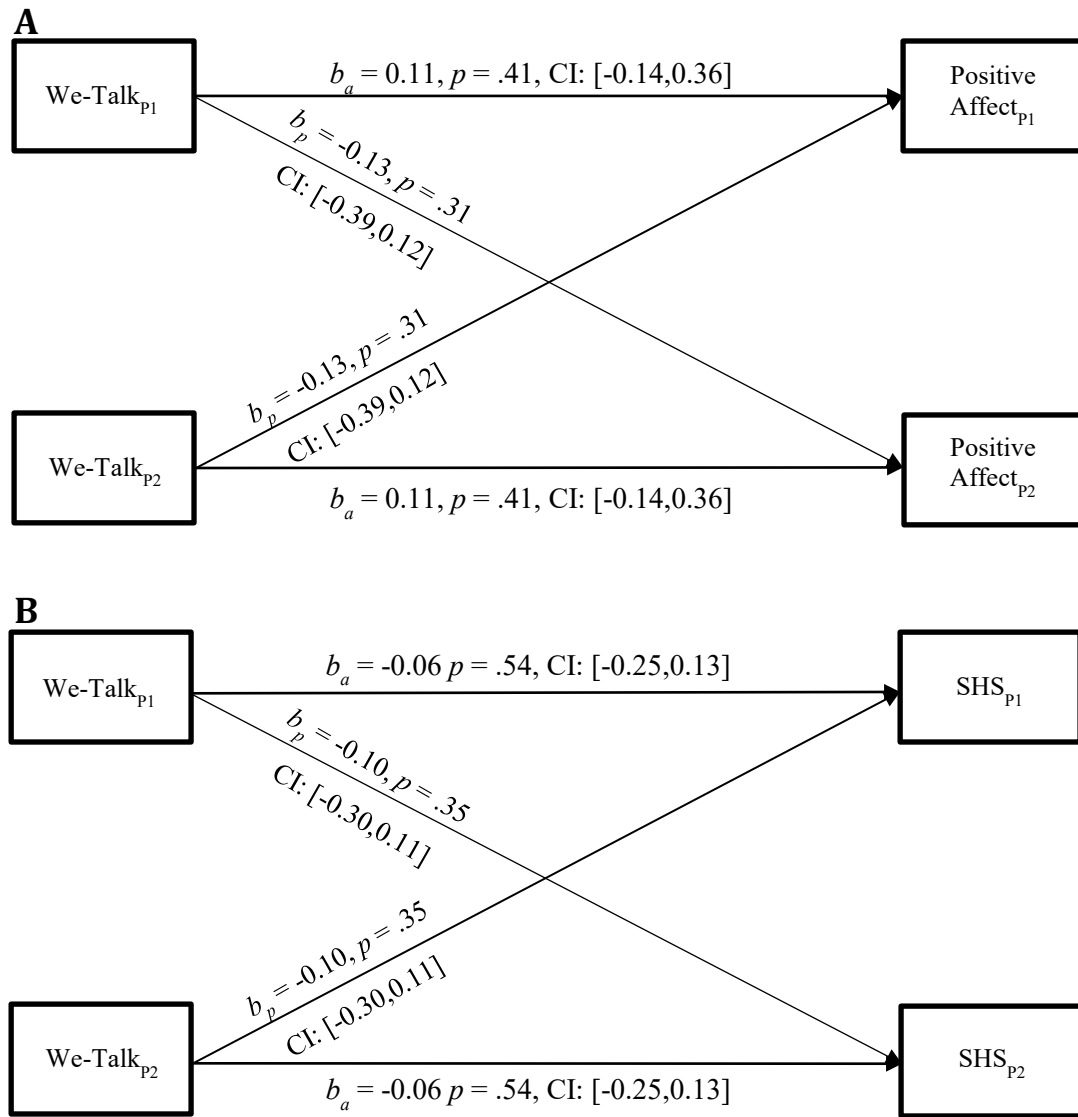


Figure 3. APIM Predicting Positive Individual Well-Being from We-Talk. Panel A shows positive affect as the outcome. Panel B shows subjective happiness measured by the Subjective Happiness Scale (SHS) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

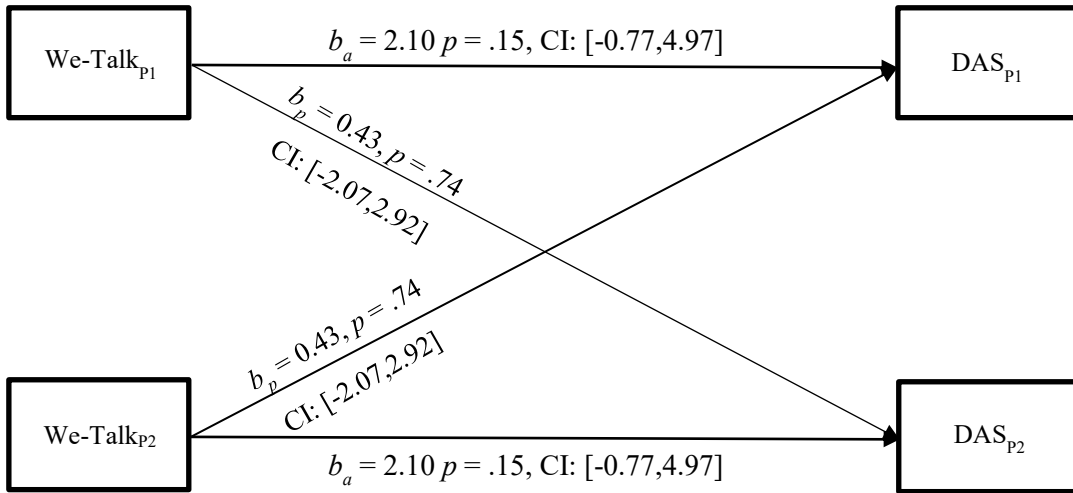


Figure 4. APIM Predicting Relationship Satisfaction from We-Talk. Relationship Satisfaction was measured by the Dyadic Adjustment Scale (DAS). b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

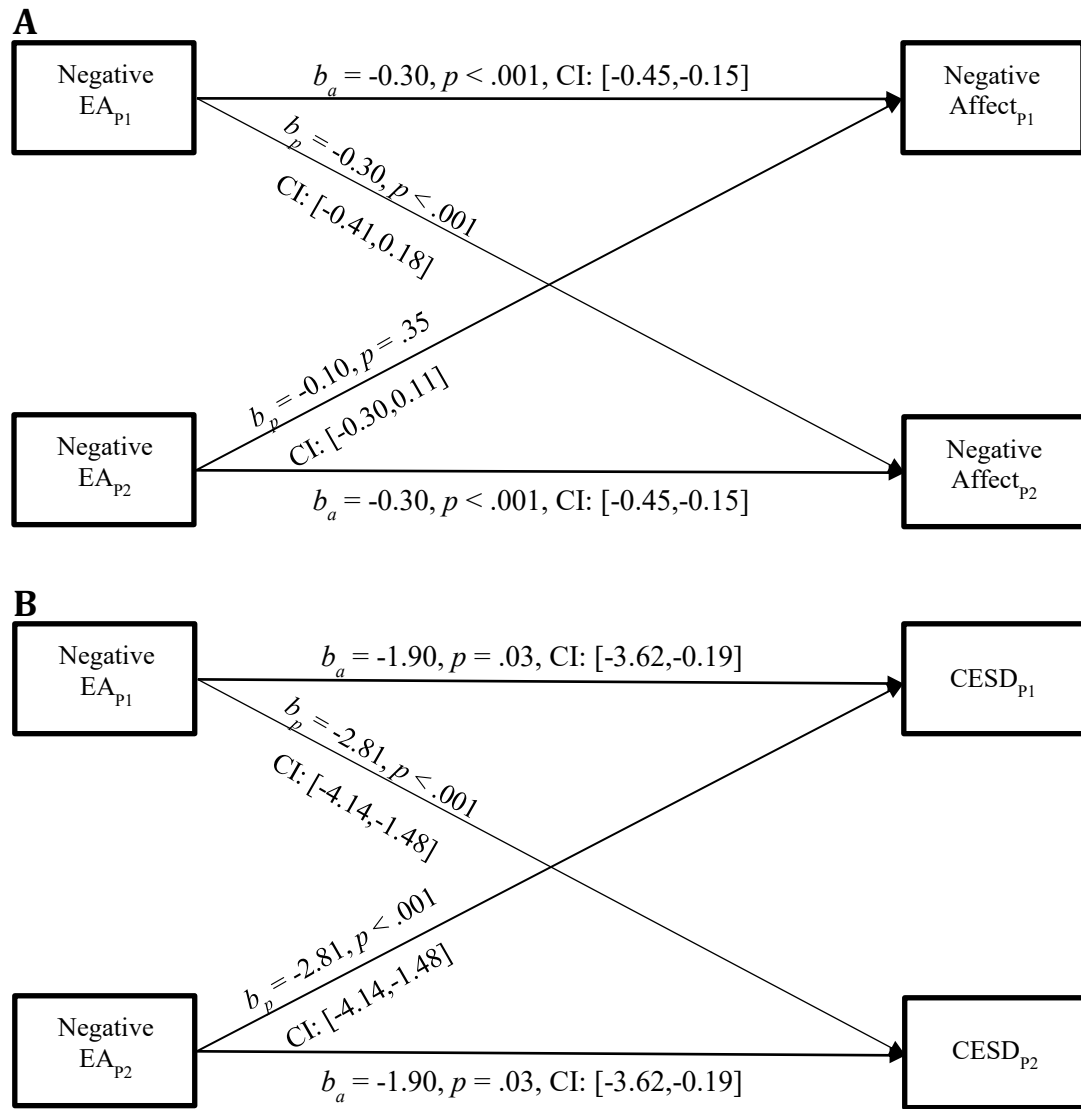


Figure 5. APIM Predicting Negative Individual Well-Being from Negative Empathic Accuracy (EA). Panel A shows negative affect as the outcome. Panel B shows depressive symptoms measured by the Center for Epidemiologic Studies Depression (CESD) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

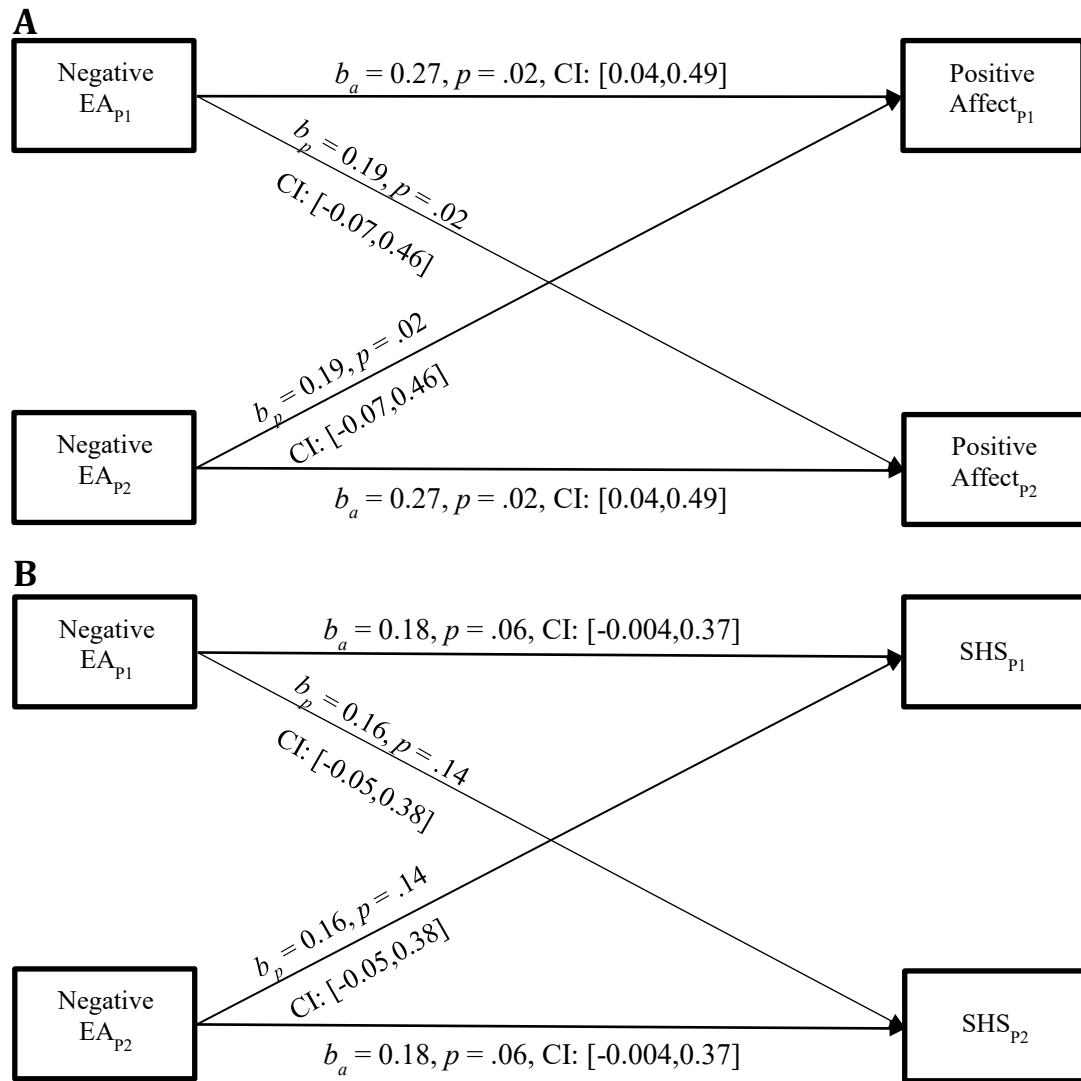


Figure 6. APIM Predicting Positive Individual Well-Being from Negative Empathic Accuracy (EA). Panel A shows positive affect as the outcome. Panel B shows subjective happiness measured by the Subjective Happiness Scale (SHS) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship

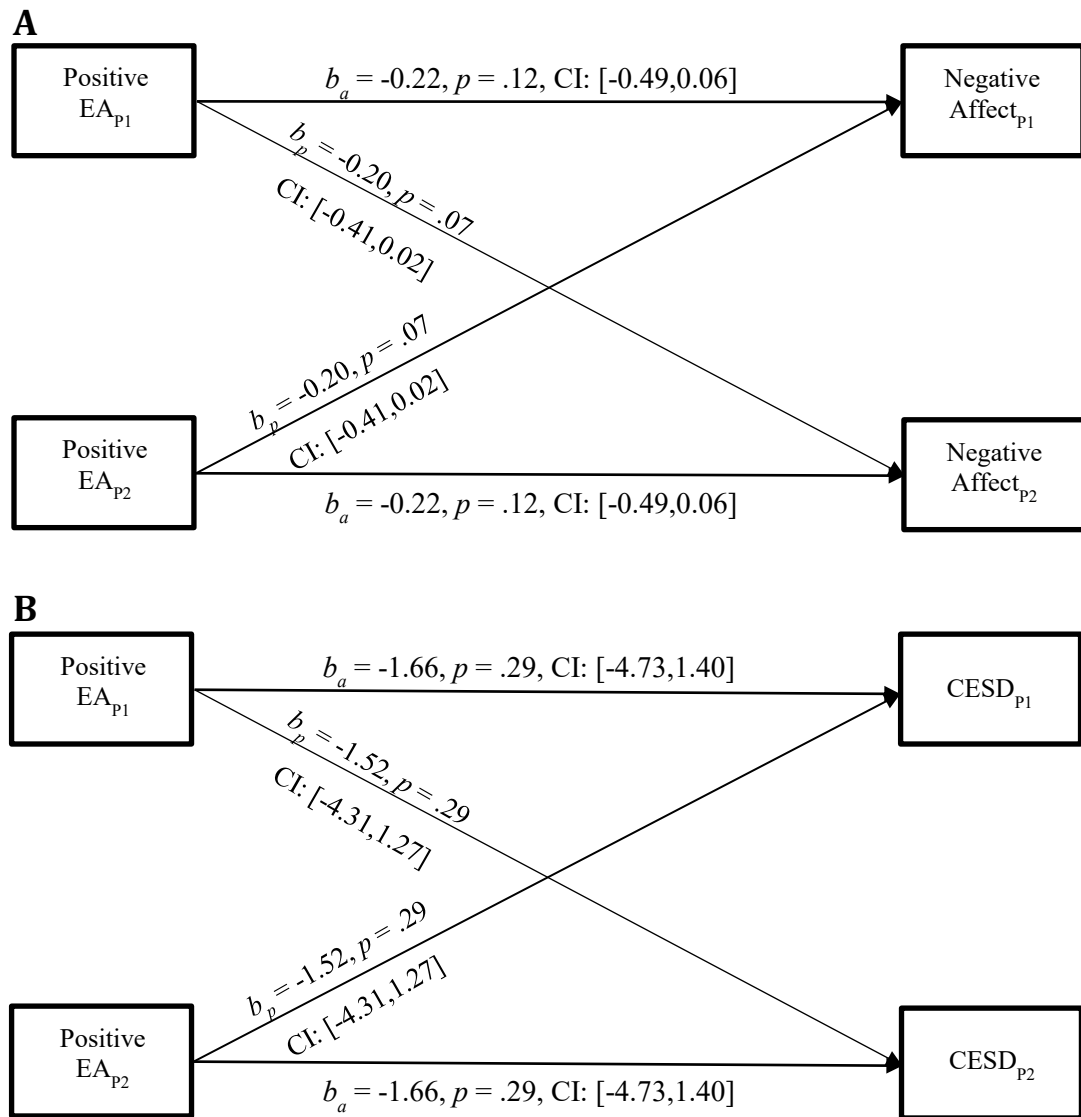


Figure 7. APIM Predicting Negative Individual Well-Being from Positive Empathic Accuracy (EA). Panel A shows negative affect as the outcome. Panel B shows depressive symptoms measured by the Center for Epidemiologic Studies Depression (CESD) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.

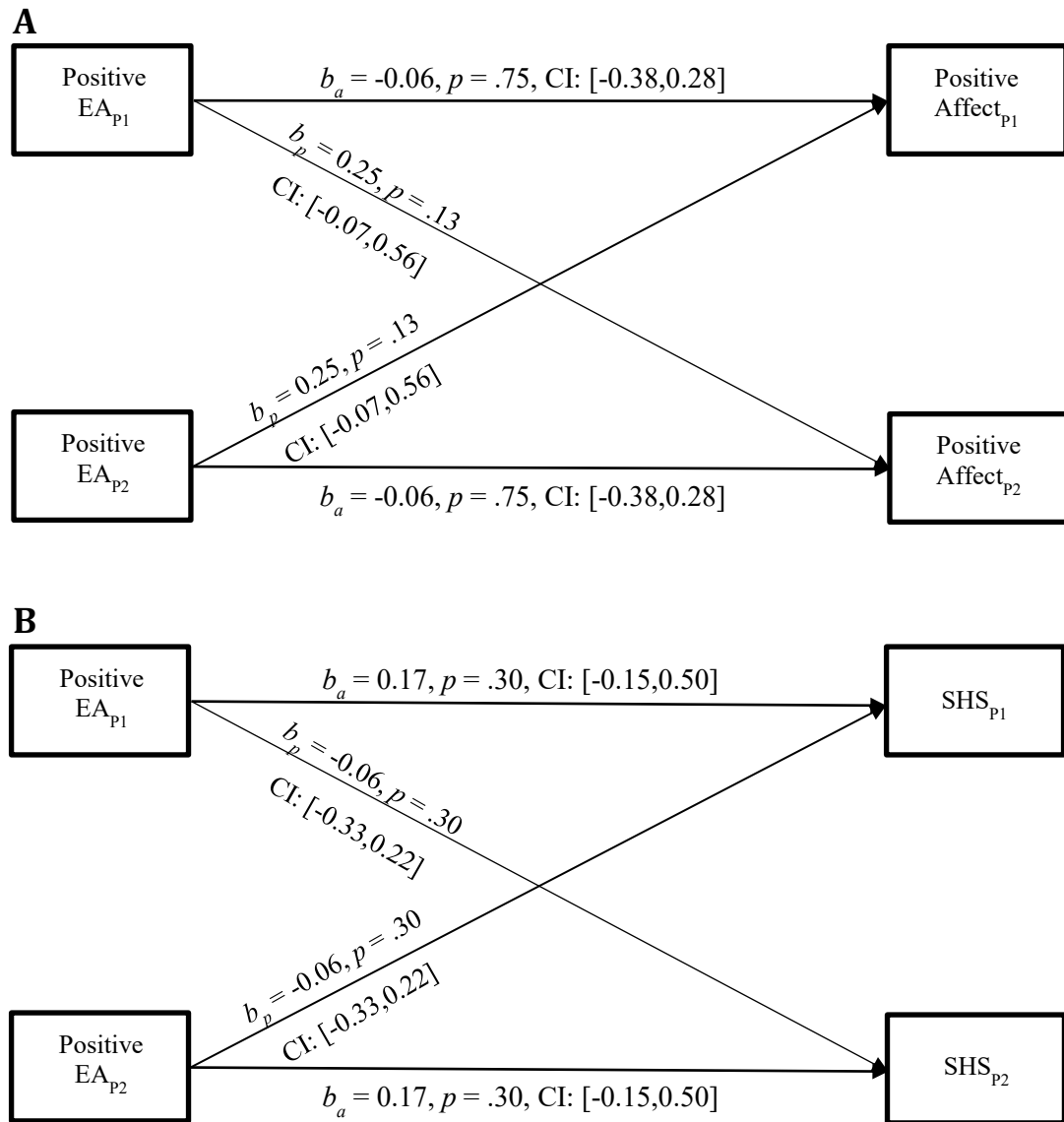


Figure 8. APIM Predicting Positive Individual Well-Being from Positive Empathic Accuracy (EA). Panel A shows positive affect as the outcome. Panel B shows subjective happiness measured by the Subjective Happiness Scale (SHS) as the outcome. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship

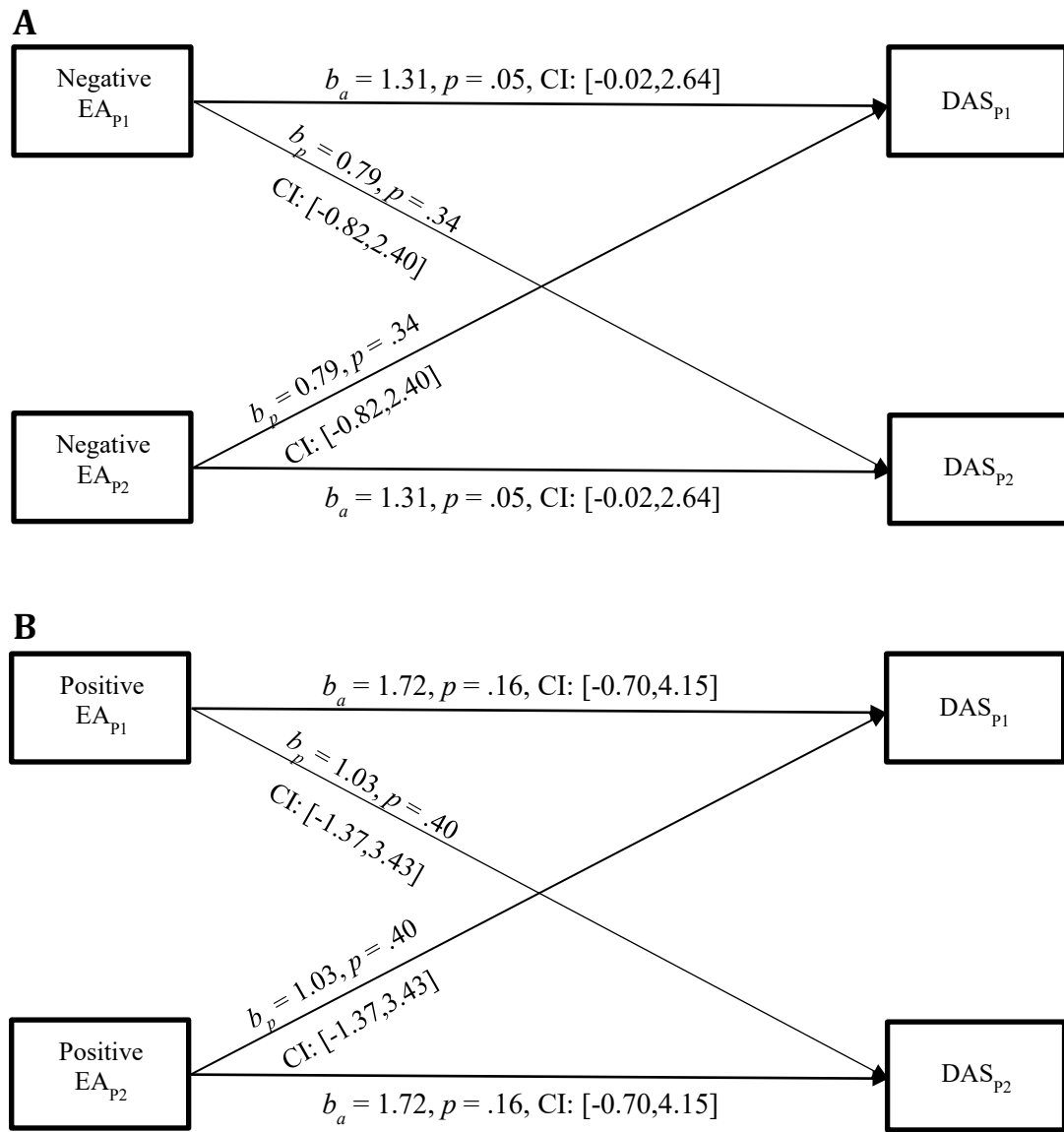


Figure 9. APIM Predicting Relationship Satisfaction from Empathic Accuracy (EA). Panel A shows relationship satisfaction measured by the Dyadic Adjustment Scale (DAS) predicted by negative EA. Panel B shows relationship satisfaction measured by the DAS predicted by positive EA. b_a = actor estimate; b_p = partner estimate; P1/P2 designate each of the two partners within the relationship.