

CPT AND BIOLOGICAL STRESS

COMMUNICATED PERSPECTIVE-TAKING INTERVENTION: A SOCIAL PATHWAY TO STRESS MANAGEMENT

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Dedications

I dedicate this dissertation to family, friends, academic colleagues, and my loving pup. My parents were there during the eustress and distress, so a deep level of gratitude is felt for them. I am yet to learn the words to express what this relationship means to me. Thus, all I can say is I love you both.

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ABSTRACT

Stress is a ubiquitous phenomenon, but left unaddressed can become a health risk. There is an opportunity for interpersonal communication researchers to develop interventions to help individuals manage stress and thus improve their health. The present dissertation tests the effects of a communicated perspective-taking (CPT) intervention on relational, mental, and physical health. CPT is the process of verbally and nonverbally expressing that one is “walking in another person’s shoes.” The experimental design employed in the current study randomly assigned participants to either tell or listen to a story about a difficult experience. The listener was randomly presented with instructions to display either a high or a low level of CPT. Results of the study provided support for the effectiveness of the intervention to change the presence of CPT in the interaction. Additional support was demonstrated for the relationship between CPT and psychological and social health. Finally, the present study provides initial evidence for a positive relationship between CPT and physical health, as measured by heart rate and heart rate variability. Specifically, listeners in the high-CPT condition had a significant sympathetic response at the start of the interaction and a significant parasympathetic response during the recovery period, compared to the low-CPT condition. First, engaging in an initial interaction with a person sharing a recent stressful event is stressful for a listener. Second, a listener who enacts a high level of CPT will have a significant stress recovery from the interaction, compared to listeners who enact a low level of CPT. This study advances CPT theorizing by being the first known study to identify a link with physical health. Furthermore, the evidence presents a CPT intervention design that can cause significant

improvements in a person's relational, mental, and physical health. In short, a listener who expresses messages that indicate to a recipient that his/her perspective is actively being attended to and confirmed will experience positive health outcomes. Theoretical implications for these findings lie in their potential to advance communicated sense-making theorizing into physical health outcomes. Practical implications exist in the potential for creating and implementing CPT interventions designed to improve individuals' and couples' relational, mental, and physical health.

Chapter 1

Rationale for Current Study

Three in four Americans have reported experiencing at least one symptom of stress, including, irritability, anxiousness, loss of interest, fatigue, or feeling overwhelmed, in the past month (American Psychological Association, 2015). Millennials (individuals 18-35 years old), in particular, reported an increase in stress in the past year. The number of Millennials who are experiencing symptoms of stress is outpacing every other generation (American Psychological Association, 2015). This trend points to the fact that stress is a prevalent aspect of many young people's lives.

Beyond its pervasiveness, stress is a valuable indicator of relational, mental, and physical health (Selye, 1936). Stress has been linked to poor mental health. For example, the experience of major, stressful life events can predict an increased risk of depression (Kendler, Karkowski, & Prescott, 1999; Mazure, 1998). Stress is also found to predict increased hostility in relationships (Beckham, Calhoun, Gleen, & Barefoot, 2002). In a national survey, 41% of married individuals stated that they have lost their patience and yelled at their marital partner in the past month due to stress (American Psychological Association, 2015). Individuals who face constant exposure to difficult life experiences have an exaggerated heart rate and higher blood pressure; both being risk factors for cardiovascular disease (Lynch, Everson, Kaplan, Salonen, & Salonen, 1998). The presence of relational conflict, social isolation, and stress from work are all related to an increased risk of coronary heart disease (Smith & Ruiz, 2002), which is the most common cardiovascular disease in the United States, killing 370,000 Americans each

year (Center for Disease Control and Prevention, 2015). In short, stress is a useful indicator and predictor of relational, mental, and physical health risks.

Given that humans are social creatures with an innate drive to belong (Baumeister & Leary, 1995), a valuable potential resource for managing stress is social relationships. Generally speaking, humans do not live in isolation, and, consequently, there is a need for communication with others. Through interpersonal communication, individuals have an opportunity to negotiate the experience of stress (Floyd & Afifi, 2012). It is important to have access to a network of people; individuals who report having access to a small social network have a two to three times greater risk of developing a cardiovascular health problem (Rozanski, Blumenthal, & Kaplan, 1999), and college students who perceive having access to social connections have a reduced frequency of negative health symptoms (Hale, Hannum, & Espelage, 2005).

An important social resource for managing stress is disclosure (Rime, 2009). In times of difficulty and stress, people often turn to their close relationships (Goldsmith, 2004). In fact, when a person has something stressful occur, they frequently turn towards a friend or family member to disclose the experience (Kalichman, DiMarco, Austin, Luke, & DiFonzo, 2003). Talking through difficult events is shown to improve feelings about the event, and is strongly connected to physical health (Goldsmith, 2004). Conversations with family members about difficult life experiences are related to increased understanding and sense-making about the event (Koenig Kellas, Trees, Schrodt, LeClair-Underberg, & Willer, 2010). Research on communicated sense-making (CSM) explores the process and outcomes of how people interpersonally process life experiences.

Communicated Perspective-Taking and Physiological Health

Research on CSM is grounded in narrative theorizing, which focuses on the ways people communicate to understand difficult and stressful experiences, identities, and relationships (Koenig Kellas & Kranstuber Horstman, 2015). The overarching goal of the CSM approach is to investigate the content and process of CSM, and to understand how this communication affects and reflects health and well-being (Koenig Kellas, 2005). CSM researchers have observed individuals, dyads, and triads sharing stories about topics of difficulty, family identity, and conflict (Koenig Kellas, 2005, 2014; Koenig Kellas, Flood Grady, & Allen, 2015b; Koenig Kellas & Trees, 2006).

To synthesize the research on CSM, Koenig Kellas and Kranstuber Horstman (2015) presented a model of CSM that theorized that individuals communicatively make sense of their lived experiences in recurrent ways. Their post-positive approach to CSM frames communication as a patterned behavior that can be categorized and structured. The CSM model involves five CSM devices: memorable messages, accounts, communicated narrative sense-making (CNSM), attributions, and communicated perspective-taking (CPT). CPT is defined as “behaviors that interpersonally communicate that one has put him- or herself in another’s shoes that may offer evidence to the relational partner that he or she is cared about and understood” (Koenig Kellas, Willer, & Trees, 2013, p.327). CPT has emerged as one of the most important indicators of CSM and a predictor of well-being outcomes, such as, relational satisfaction, mental health, and perceived stress (Koenig Kellas et al., 2010; Koenig Kellas et al., 2013). Because of this strong connection to well-being outcomes, many CSM scholars have turned to investigating CPT within interpersonal relationships. The relationship between CPT and

stress is of particular interest because CPT is a potential social pathway to stress management (Koenig Kellas et al., 2015). Simply stated, the present dissertation is focused on the intersection of CPT, stress, and health.

One of the core trends in the CSM and CPT literature regards how individuals make sense of difficult experiences (Koenig Kellas et al., 2015; Koenig Kellas & Kranstuber Horstman, 2015). Difficult experiences include stressful experiences, because both are often a source of potential distress (Pennebaker, 1993; Smyth, True, & Souto, 2001). In fact, Koenig Kellas et al. (2010) study operationalized their hypotheses on sense-making of difficult experiences through a prompt that asked married couples to “tell a story about an experience that had been stressful on their relationship” (p. 81)¹. Researchers in varying disciplines have focused on the way individuals can alleviate stress through making sense of their difficult experiences (see Koenig Kellas & Kranstuber Horstman, 2015; Frattaroli, 2006). Individuals can make sense of their difficult experiences through talking or writing about them. The importance of this process is highlighted in a meta-analysis of experimental disclosure studies that found a moderately large average effect size for the benefits of disclosure on relational, mental, and physical health (Frattaroli, 2006). These studies primarily involved written disclosure, but there is evidence to suggest verbalized disclosure produces greater outcomes. In an experiment that compared written versus verbal disclosures over time, the participants in the verbal condition had stronger immune systems and were found to have greater cognitive improvement (Esterling, Antoni, Fletcher, Margulies, & Schneiderman, 1994).

¹ Koenig Kellas et al. (2010) provide examples to participants for the “experience that had been stressful” (p.81) as ranging from the birth of a baby to a conflict.

Stress has a robust relationship with relational, mental and physical health and that stress is a clearly defined biological process (Floyd et al., 2007; Selye, 1936). In other words, stress is an experience that an individual can self-report broadly, and is also a phenomenon with distinct biological markers. Thus, stress appears to be a logical domain within which to investigate the relationship between CPT and health. In this current dissertation, I argue that stress is an important element of CSM because stress cues a person that s/he has a need to make sense of an experience. Often the goal of CSM is to decrease the distress felt around a difficult experience, and positive health outcomes occur through sense-making about difficult events (Koenig Kellas, 2014; Koenig Kellas & Kranstuber Horstman, 2015).

However, the work in CPT has focused on individuals' *perceptions* of their health. For example, decreased distress found in previous research is represented by a decrease in frequency of symptoms of stress and negative health (Koenig Kellas et al., 2010). Perceptions are insightful in accounting for how an individual feels, but other aspects of health are not accessible in self-report scales. For example, a person cannot self-report his/her cholesterol level at a given time, and s/he would not be able to report a change in cholesterol over the past month (Floyd, Mikkelson, Hesse, & Pauley, 2007). If one is to research and make claims about a social animal such as humans, it "requires understanding *both* the social *and* the animal in the human" (Floyd, 2014, p. 3). Because biology is inescapably tied to human communication (Floyd & Afifi, 2012) and every communication act is affected by and affects biology (Floyd, 2014), it is important for researchers to identify the biological mechanisms at play within communicative behaviors of interest. Following this line of logic, the next step for research at the

intersection of CPT and health is to identify the biological underpinnings at play in CPT. By embracing a communicative framework, the impact of health is not limited to simply one individual, rather, health is an outcome of social interaction.

CPT Expression and Reception

CPT is a transactional process that requires a minimum of two interlocutors, designated in past research as a “teller” and a “listener” (Koenig Kellas, Kranstuber Hostman, Willer, & Carr, 2015). The “teller” is the individual in the interaction bringing the difficult or stressful experience to the conversation. The “teller” is the target for the sense-making. The “listener” is the individual who can communicatively assist the “teller” in his/her sense-making. To be clear, CPT is a transactional process wherein the listener and teller are communicating simultaneously; the labels “teller” and “listener” simply designate the roles of the person who is sharing his/her story and the person who is providing CPT. Given that both interlocutors have a stake in the interaction, it is important to understand the potential impacts to both the listener and the teller.

Thus, the first goal of the present dissertation is to observe the benefits and risks associated with being a listener (i.e., perspective-taker) in a CPT interaction. In a study focused on interactional sense-making (ISM), listeners were found to increase their negative affect and decrease their positive affect over time (Koenig Kellas et al., 2015). One potential explanation for this outcome is that CPT is face-threatening (Goldsmith, 2004) because the individual who is performing CPT is at risk of being wrong or insulting his/her interactional partner. In other words, CPT could negatively impact the way in which the recipient feels about the listener, and ultimately alter their relationship. Another explanation of the negative effect of CPT is that perspective-taking is a

cognitively taxing act (Smyth & Pennebaker, 2008), and communicating about perspective-taking is even more demanding (Koenig Kellas et al., 2015). Thus, CPT is a valuable resource for a person trying to make sense of a difficult experience, but the provider of CPT might incur some personal and relational risks as well.

The stress-buffering hypothesis is a potential explanatory mechanism for the costs and benefits of CPT for a listener. The case connecting stress to health will be built through the stress-buffering hypothesis (Cohen & Wills, 1985). The stress-buffering hypothesis is a well-supported claim regarding how a social relationship can be a source of positive health outcomes through protection against chronic stress, also known as distress (Cohen & Wills, 1985; Seyle, 1936). Stress-buffering is defined as a behavior that is shown to protect an individual against the negative effects of stress through suppressing the magnitude of the stress response and/or undoing the body's state of being stressed. For example, the presence of support during times of stress is related to significant stress protection, which is what ultimately facilitates positive health outcomes (Cohen & Wills, 1985).

In particular, the act of listening can be stressful and difficult (Lewis & Manusov, 2009; Shortt & Pennebaker, 1992), but providing support is also related to positive health outcomes (Brown, Nesse, Vinokur, & Smith, 2003). Thus, there appears to be a seemingly contradictory trend related to being a listener in an interaction. In other words, listening is found to cause an increase in stress, yet it also can lead to positive health outcomes. Furthermore, of interest, are what appear to be contradictory findings showing that CPT is stressful for a listener, but at the same time beneficial (Koenig Kellas et al., 2015). Interpreted through the stress-buffering hypothesis, the act of CPT is acutely

stressful, but the overall benefit of listening and providing perspective bolsters biological stress recovery. In other words, once the stressor (e.g. the interaction) is removed, an unhealthy individual would show a prolonged state of stress. This prolonged state of stress wreaks havoc on his/her allostatic load, which is the “wear-and-tear” on the body from being in a state of stress (McEwen, 1998). Simply, stress is an adaptive biological response to novel stimuli, but comes at a cost to the body and becomes a health risk if the stress is chronic. This means that a healthy listener only experiences acute stress.

Therefore, it is reasonable to expect that an individual positioned as a “listener” (e.g. CPT provider) will experience both health benefits and risks, because, the health benefit is seen in the evidence related to positive health outcomes and the risks are rooted in an increase in stress from being a listener. In the current dissertation, then, I will test the biological effects of CPT on listeners to assess the stress related to providing CPT.

Theoretical Contributions of the Present Study

The present dissertation contributes to CSM, CPT, and stress theorizing in three ways. First, CPT research has theorized and demonstrated a link between two of the three dimensions of well-being – mental and relational well-being (Koenig Kellas & Kranstuber Horstman, 2015) – but is yet to observe the relationship between the third – physical well-being. Previous research has relied on perceptions of health (e.g. self-report measures) on concepts such as perceived stress (Koenig Kellas et al., 2010), mental health symptoms (Koenig Kellas, Carr, Horstman, & DiLillo, 2017) and satisfaction with life (Koenig Kellas et al., 2015). Physical health indicators are needed in CPT research because they are not a measure of a person’s perception of their health; rather it is a metric of the internal biological processes (Floyd et al., 2007). Hence, there is a need to

include biological indicators of health in CPT research. Biological metrics such as cardiovascular stress response are vital to understanding the physical health connections to interpersonal communication phenomena. Without the study of physiological health indicators, the full breadth of a CPT and health connection would remain incomplete (Floyd & Afifi, 2012). Thus, through testing biological stress responses, the present study will contribute to the overall picture of how CPT affects and reflects physical health.

Second, the current study will seek to test a causal relationship with CPT and interactants' outcomes. To date, because of the reliance on self-report measures, CPT researchers have been limited to only making claims of association between CPT and well-being (Koenig Kellas et al., 2013, 2015b). The present study utilized an experimental design to establish causality between CPT and well-being. There have been limited experimental studies on CPT (c.f., Koenig Kellas et al., 2010; Koenig Kellas et al., 2015), and the manipulation of the level of CPT is missing. For example, a recent study manipulated CPT by having a participant write about conflict in a relationship from his/her perspective or the other person's perspective (Koenig Kellas et al., 2015). Their study manipulated (cognitive) perspective-taking, but not necessarily CPT, because it did not change the behaviors related to CPT. Therefore, the present study manipulates the level of CPT and observes it within the context of an interaction between a teller and a listener. Through the manipulation of CPT, this study is uniquely positioned to make claims about a potential casual nature of CPT during interactions.

Third, CPT has been accounted for as an organically occurring characteristic of interactions (i.e., observed interactions rated posthoc by researchers or participants) (Koenig Kellas et al., 2013; Koenig Kellas et al., 2015a), but CPT's utility as a prompted

communicative intervention tool is yet to be observed. In other words, it is yet to be seen if the presence of CPT can be manipulated and the effects of varying levels of CPT in an interaction. To be an effective intervention, CPT must emerge as a skill-like behavior that can be manipulated and trained to cause positive health outcomes. Thus, this study provides initial evidence in response to the call for more “translational” CSM research (Koenig Kellas & Kranstuber Horstman, 2015).

Overall, the goal of the study is to test the relationship between CPT and physical health through a focus on the biological underpinnings of stress before, during, and after a conversation about a stressful experience. I tested a CPT intervention through a variation of high- and low- levels of CPT. As such, this study will expose a potential biological mechanism related to the intersection of CPT and health; with the goal of providing translational evidence to improve not just a person’s psychological and social health, but also his/her physical health. To set the foundation, I will first explore CSM and how that builds towards the present focus on CPT. Second, CPT will be considered for the position of both a teller and a listener. Finally, the broad concept of stress will be defined and positioned within the context of interactions and CPT.

Literature Review

Communicated Sense-Making

Stressful experiences are ubiquitous in life, but when such an experience is not expressed, it can become chronically detrimental (Pennebaker, 1997). In other words, there is a health need for an individual to share life stressors with others. Thus, individuals of process and understand their difficult experiences through discussing them with others (Koenig Kellas, 2005; Rime, 2009). Given that humans are social creatures

(Baumeister & Leary, 1995), the ways they utilize relationships to manage stress is an important avenue to research. Therefore, the following will investigate the ways in which humans use communication to express, understand, and ameliorate stress.

Communicating about difficult events often takes the form of a narrative.

Narrative theorizing is a paradigm that positions people as innate storytellers (Fisher, 1987). Therefore, storytellers (e.g. humans) create plots, settings, scenes, and characters to understand their experiences (Bruner, 1987). Through the process of storying events, narrative can function as a tool that humans use to understand themselves and their social relationships (Duck, 1994). Importantly, it is through structuring difficult events and relationships in a narrative framework consisting of plots and scenes that an individual can have a congruent understanding of what otherwise might be a disjointed and unorganized experience (Bruner, 1987).

Within narrative theorizing, sense-making can be divided into two pathways: individual sense-making (Horstman, Maliski, Hays, Cox, Enderle, & Nelson, 2015) and communicated sense-making (CSM). Individual sense-making is the act of cognitively constructing a personal narrative around a meaningful event (Koenig Kellas, 2014). The process of reflecting on a difficult event and writing about it, as seen in the expressive writing paradigm (EWP) is an example of individual sense-making (Pennebaker, 1993). EWP is an approach to sense-making that involves having an individual write about a traumatic or difficult experience typically three times over a month, and that is found to improve health outcomes (Pennebaker, 1997). Therefore, the first pathway, individual sense-making, is focused on individually making sense of an experience.

Whereas individual sense-making focuses on an internal and isolated process, CSM focuses on how sense-making is a social process, consisting of sending and receiving verbal and non-verbal messages (Koenig Kellas & Kranstuber Horstman, 2015). Through the pathway of CSM, research is moving beyond a focus on just the cognitive process of understanding an experience. By using the term “communicated,” CSM scholars are underscoring the idea of sense-making as a social process. The act of communicating lived experiences means a person is putting those experiences into social symbols and messages (Scott & Lyman, 1968). CSM is a valuable structure to investigate various health outcomes, because the process of putting distressful events into words is shown to help create an understanding of events (Koenig Kellas & Manusov, 2003) and improved well-being (Koenig Kellas, 2005). CSM is a multifaceted construct built within the narrative paradigm (Koenig Kellas, 2014). Of the five CSM devices (i.e., memorable messages, accounts, CNSM, attributions, and CPT), two areas have received much of CSM research attention: CNSM and CPT (Koenig Kellas & Kranstuber Horstman, 2015).

Much of the research in CSM started with CNSM, which posits that individuals socially share narratives to make sense of their identities, relationships, and challenges (Koenig Kellas & Kranstuber Horstman, 2015). Specifically, the narrative approach suggests that humans’ lived experiences are accessed through structured story-like forms and that the story-like forms are what people use to socially understand and make sense of their relationships (Homberg, Orbuch, & Veroff, 2004). Early work in CNSM focused on joint storytelling, which investigated the social process and behaviors of storytelling, often in dyads or triads (Koenig Kellas, 2005). Joint storytelling involves the collaboration of relational partners to make sense of experiences jointly, also called ISM.

To be clear, ISM is the way people communicatively negotiate meaning in their jointly-told stories through engagement, turn-taking, coherence, and perspective-taking (Koenig Kellas, 2005).

The second CSM behavior that has received a majority of CSM research attention is CPT. CPT has been identified as an important CSM behavior for two central reasons. First, CPT has a history of being an important connection to health (Koenig Kellas et al., 2013). Second, CPT is not limited to sense-making in just the context of jointly told stories; it can take place outside of storytelling (Koenig Kellas et al., 2015). The following will begin by explaining the concept of (cognitive) perspective-taking. And through a CSM foundation an argument for the importance of research that integrates interpersonal communication in perspective-taking.

Perspective-taking

CPT is rooted in psychology research on (cognitive) perspective-taking. The terms “cognitive perspective-taking” and “perspective-taking” are often used interchangeably in the literature; in the current paper “perspective-taking” will be used. The origins of perspective-taking research began with a focus on individuals attempting to understand a phenomenon from another person’s perspective (Kurdek, 1978). Perspective-taking is defined as the process of an individual mentally placing him/herself in “someone else’s shoes” (Davis, 1980). In other words, it is the ability to intellectually position oneself in another person’s experience (Hogan, 1969). A challenge related to cognitive perspective-taking is that it is an internal process that cannot be observed directly by the researcher, only reported or prompted.

When discussing perspective-taking, the parallels and differences to empathy must be outlined. Empathy is defined as the “capacity of an individual to feel the needs, the aspirations, the frustrations, the joy, the sorrows, the anxieties, the hurt, indeed, the hunger of others as if they were his or her own” (Clark, 1980, p. 188); whereas, perspective-taking is the cognitive understanding of the other’s experience (Davis, 1980). Perspective-taking has a relation to empathy but is a distinct concept. Specifically, perspective-taking can exist without empathy, but perspective-taking is a prerequisite for empathy. In that, perspective-taking has a positive relationship with empathy (Davis, 1983). The key point of demarcation between these two concepts is that empathy is the act of mirroring the other person’s feeling, which means there is an emotional response, which can be the result of placing oneself in the other’s shoes. For example, John can understand from a child’s perspective that ice cream falling on the ground is worth crying over (e.g. perspective-taking), but if John does not also feel sadness about the spilled ice cream, he is not displaying empathy. Therefore, empathy can be the result of perspective-taking, but perspective-taking does not always lead to the emotional response of empathy. For example, married couples often access their feelings to try to understand their partner’s perspective (Sillars, Pike, Jones, & Murphy, 1984). In other words, perspective-taking is achieved through empathizing with another person’s experience. Although empathy is not the focus of the paper, a greater appreciation of perspective-taking is gained from the contextualization of perspective-taking alongside empathy.

Communicated perspective-taking. Perspective-taking is inherently interactional (Koenig Kellas et al., 2017). Hale and Delia (1976) claim that perspective-taking is “the basic social cognitive process in communication” (p.195). Simply, to take

another's perspective, there must be another person's perspective to take. Therefore, it is through communication that an individual can ascertain the information to begin to construct the other person's experience cognitively. Without the communication back to the teller, the listener is unable to manage the perceptions and assumptions being made by the teller (Sillars et al., 1984). Koenig Kellas and colleagues (2013) argue that CPT might even be more important than perspective-taking, because even if perspective is inaccurate, CPT still allows the interactional partner to know that s/he is valued enough to put effort into trying to understand.

CPT is defined as “behaviors that interpersonally *communicate* that one has put him- or herself in another's shoes that may offer evidence to the relational partner that he or she is cared about and understood” (Koenig Kellas et al., 2013, p.327). In other words, it is the verbal and nonverbal messages that signal to an interactional partner that the listener is actively trying to understand the other person's experience. Therefore, it is clear that that (cognitive) perspective-taking and CPT are inseparably and intimately related, but importantly CPT is the observable form of perspective-taking.

To further build on the complexity of CPT, Koenig Kellas, et al. (2013) identified six sub-dimensions of CPT. They observed CPT in a storytelling task between married couples about a stressor related to their marriage. During the storytelling task in the laboratory, couples identified behaviors of CPT in their partner. This took the form of the couple individually watching a recording of their interaction and rating their partner's CPT minute-by-minute. The interactions displayed six sub-dimensions of CPT. All the dimensions are valenced; in other words, dialectical adjectives anchor each dimension. First, is *agreement-disagreement*, which is the ability of the conversational partner to

consistently align perspectives and use messages that allow for the recipient to feel his/her point of view is understood to some degree. Second is the sub-dimension of *attentiveness-inattentiveness*, which is predominantly nonverbal behaviors that display a level of engagement in the interaction. The third is *relevant-irrelevant*, this is represented by how much does the information add to further the conversation and advance the story or does the added information sidetrack and distract from the story. Fourth is *coordination-uncoordination*, which represents how well the pair interacted jointly, observing how they can coordinate their behaviors, or not, during the interaction. Fifth is *positive tone-negative tone*, which references the overall affective tone of the interaction. Sixth is *freedom in storytelling*, which is represented by how much conversational “space” was available in the interaction for the story to be told, exposing if the storytelling process was constrained. Thus, CPT is a complex behavior that requires nuanced empirical attention to understand.

Importantly, CPT is related to social and psychological health outcomes. Previous research has found that behaviors similar to CPT have predicted improved social health. For example, the ability to empathically communicate to the interactional partner is shown to improve perceptions of the communicator in the relationship (Jones, 2004). Furthermore, CPT-like behaviors are also related to positive psychological health outcomes. For example, in a longitudinal study, self-reported levels of emotional support were found to be a significant predictor of reduced symptoms and stress at a follow-up evaluation (Burlson, 1984). Furthermore, in a study that had married couples discuss a relational stressor, when the husband was rated to display a high level of CPT, he concurrently was found to report better mental health and less perceived stress in the past

month (Koenig Kellas et al., 2010). Interestingly, the positive health outcome for husbands was also impacted by his wife's CPT. In Koenig Kellas et al.'s (2015) study involving a writing task that prompted participants to write about a relational conflict from their own and their partner's perspective, CPT was found to relate to a decrease in reported mental health symptoms across time. In other words, their study found that actively processing and expressing another person's perspective is related to positive health outcomes. Thus, there is sufficient research to suggest that CPT is related to relational and mental well-being.

A parallel trend can be found in the social support literature. The presence of emotional support is linked to positive improvements in well-being (Albrecht, Burleson, & Sarason, 1992). Conversely, a perception of a low level of emotional support was related to a greater risk of cardiovascular problems in the future (Rozanski, Blumenthal, & Kaplan, 1999). A similar idea to CPT in social support literature is verbal person-centered (VPC) messages, or "the degree to which a support-giver verbally expresses empathy and validates the distressed person's feelings" (Jones & Guerrero, 2001, p. 567-568). Based on this definition of VPC messages, some parallels to CPT can be seen. First, both involve messages that convey to the other person that the listener hears him/her. Second, VPC messages and CPT are focused on ensuring the position of the teller as the important actor in the conversation. Third, the expression of empathy in VPC messages means that a support provided had to perform some level of perspective-taking to get to the point that s/he can express empathy (Davis, 1980). Although VPC messages are more focused on expressions of empathy and CPT is expressions of perspective-taking, there is still useful insight that can be gained from these similar prosocial behaviors. In a meta-

analysis of experiments that involved the manipulation of the presence of high- to low-VPC messages through the use of a confederate, High and Dillard (2012) confidently concluded that the presence of a high level of VPC messages consistently related to positive well-being. Thus, the presence of messages that acknowledge a speaker and affirm his/her emotional experience is related to positive health outcomes.

There is a clear trend connecting a prosocial behavior such as CPT with positive health outcomes. Specifically, increased presence of CPT in a relationship is found to predict a decreased perception of stress symptoms and mental health issues (Koenig Kellas et al., 2010). This evidence is further reinforced by social support literature that finds that the presence of emotional support is related to reports of improved health (Albrecht, Burleson, & Sarason, 1992). Taken together, a prosocial behavior, such as CPT, that communicates to a person that s/he matters will lead to improved individual perceptions of health. Therefore the following hypothesis is presented:

H1: Tellers' perceived level of CPT in the interaction will predict their reports of perceived stress symptoms.

In addition to the influence of CPT on perceptions of mental health, CPT is also seen to relate to social health. For example, in a study of married couples, CPT was found to be important for satisfaction for both the husband and wife in the study (Koenig Kellas et al., 2017). Furthermore, in a study of college age students in a romantic relationship, the act of reflecting on an ongoing conflict from his/her partner's perspective was found to increase reports of relational closeness (Koenig Kellas et al., 2015). In fact, there is initial evidence that suggests a decrease in CPT will relate to poorer evaluations of the interaction. Specifically, over time, as a teller's perceived level of CPT decreases, so does

his/her evaluation of the listener (Koenig Kellas, Kranstuber Hostman, Willer, & Carr, 2015). Therefore, I seek further test a causal relationship between CPT and interpersonal evaluations of the interaction.

H2a: Tellers in the high-CPT condition will have greater overall satisfaction with the interaction, compared to tellers in the low-CPT condition.

H2b: Tellers in the high-CPT condition will have greater satisfaction with the communication in the interaction, compared to tellers in the low-CPT condition.

H2c: Tellers' perceived level of CPT in the interaction will be positively correlated with their evaluation of the interaction (e.g. satisfaction with interaction and satisfaction with listeners' interpersonal communication).

CPT requires both a teller and a listener. Therefore, although the previous hypotheses were focused on the teller's perception of the interaction, the following uses the same rationale to hypothesize about the listener's evaluations of the interaction. Thus, the following hypotheses are presented regarding a CPT provider's evaluation of the interaction:

H3a: Listeners in the high-CPT condition will have greater overall satisfaction with the interaction, compared to listeners in the low-CPT condition.

H3b: Listeners' perceived performance of CPT will be positively correlated with their overall satisfaction with the interaction.

There is a need for research that investigates if CPT can be shifted and to what degree. Current evidence for the relationship between CPT and health outcomes is limited to either retrospective evaluations of CPT – a participant's ratings of his/her partner's CPT after the interaction (Koenig Kellas et al., 2013) – or through an observer

coding a recording of the interaction (Koenig Kellas, 2005; Koenig Kellas et al., 2010; Koenig Kellas et al., 2013). For example, Koenig Kellas and colleagues (2013) had married couples jointly share a story about something stressful in their marriage, and after this brief conversation, couples sat separately and rated their partner's CPT. The participants watched a video from the interaction and every minute the participant would report on their perception of their partner's CPT across three semantic differential items. These items tapped into the amount they perceived their partner understood him/her, the amount of confirmation that s/he perceived being present, and if s/he felt his/her partner was ignoring or affirming his/her perspective (Koenig Kellas et al., 2013). Therefore, the first approach to CPT research is seen through a retrospective task performed by the participants.

The second approach to researching CPT involves trained independent coders rating the level of CPT present in an interaction (Koenig Kellas et al., 2013). The rating of CPT has gone through some growth. Initially, CPT was rated at a global level based on the ISM codebook definition of CPT (Koenig Kellas, 2005). This measure had raters report about the overall interaction and indicated the level that the participant (a) appeared to be attentive to the other's perspective and (b) is displaying behaviors that confirm the other's perspective. The codebook resulted in a single data point for two sub-dimensions of CPT. As CPT has been investigated outside the parameters of ISM, there has been an additional five sub-dimensions (e.g. contributing (ir)relevant information, conversational (in)attentiveness, availability of space for talk, (dis)agreement, and affective tone) of CPT that has been integrated into a CPT rating handbook (Koenig

Kellas et al., 2013). In short, the second approach to CPT research utilizes an independent rater to evaluate the presence of CPT in a prior interaction.

The two approaches to CPT have a similar thread within them, that is that they both involve a retrospective evaluation of CPT. Also, both approaches observe CPT as “naturally” occurring. In other words, the participants were blind to the purpose of the study and were displaying varying levels of CPT as if it were a typical interaction. In essence, previous research has treated CPT as more of a “relational trait.” In that, a researcher develops an understanding of the level of CPT that exists in a given relationship through observations of interpersonal interactions. In short, CPT researchers have used the state of CPT in an interaction as an indicator of the relationships CPT-trait. This points to an opportunity to investigate CPT prospectively. Thus, the present aim of the study is to investigate CPT prospectively, through an intervention design.

Through a CPT intervention, the level of CPT can be prospectively infused into an interaction, and the subsequent impacts can be observed. A narrative based CPT intervention is a strategy that requires both theoretical and evidence-based benefits to be put into practice (Wittenberg-Lyles, Goldsmith, Sanchez-Reilly, & Ragan, 2008). The present investigation is in line with Koenig Kellas and Kranstuber Horstman’s (2015) call for researchers to embrace CSM devices as sources of interventions to improve individual and social health. Thus, the current approach is rooted within CSM and will test the impact of trying to manipulate the presence of CPT in an interaction. To date, there is a lack of research that tries to manipulate the level of CPT in an interaction explicitly.

H4: Tellers will report perceiving significantly more CPT when listeners are prompted to display a high level of CPT, compared to listeners who are prompted to display a low level of CPT.

An additional limitation of the two main approaches to CPT data collection discussed above is that the health outcome measures are limited to the participant's perceived health. Their dependence on self-reported health exposes a gap in the research concerning metrics that a person cannot self-report (Floyd & Afifi, 2012). For example, participants might be able to report that their heart is beating quickly, but they would be incapable of reporting their average heart rate each minute. Therefore, the current dissertation focuses on a potential causal mechanism for the relationship between CPT and health. The aim of the present dissertation is to show that CPT provides a form of stress protection in a single interaction; if that benefit is seen in a single interaction, then the presence of CPT in daily interaction may have a cumulative positive effect on health. Given that stress is a prominent undercurrent in research about communication and health (Floyd & Afifi, 2012), the focus will shift to what stress is and its relationship with health.

Stress and the Transactional Process of CPT

Research on health and well-being typically can be classified under three dimensions: mental, social, and physical. These dimensions of health are not mutually exclusive, but rather they are overlapping and deeply intertwined indicators of overall well-being. Research in CPT has been very effective at establishing a connection to a self-reported indicator of well-being. Unfortunately, self-reported measures are only capable of representing the mental and social dimensions of health but are unable to

assess physical well-being (Floyd & Afifi, 2012). A frequently-used avenue to observing individual physical well-being is through the integration of physiological measurements of stress (e.g. biological stress). Biological stress offers a measurable “window” into a person’s health. In other words, a person’s stress response and processing reflect a person’s health, because of its potential to impact health.

Because stress is a pervasive human experience (Selye, 1936), it has been the focus of much of social research. With any phenomenon that is studied by different disciplines and paradigms, a range of definitions or operationalization have been used. Thus, it is prudent to provide a specific and clear definition of stress in any study involving stress. In the current study, stress can be defined as the perception of a situation that demands or presents threats, which are beyond the individual’s ability to appropriately cope (Cohen & Wills, 1985; Lazarus, 1966). In the following section, stress will be more precisely defined and conceptualized within an evolutionary and biological lens. The overall goal of integrating stress into the research is to allow understandings of the relationship of CPT to physical health.

Stress and physiological research. The bio-evolutionary approach to stress is built upon the inextricable relationship between behavior and biology (Selye, 1936). Specifically, *stress* is the body’s physiological response to a perceived challenge. To be in line with the definition presented earlier, a perceived challenge is those situations that place demands on an individual or presents a threat. A *stressor* is any perceived, or anticipated, threat to a person’s mental, physical, or social well-being. In other words, stress is a bodily response, and a stressor is a causal agent for the bodily response. Sapolsky (2006) stated that “a stressor is anything in the outside world that knocks you

out of homeostatic balance, and the stress-response is what your body does to reestablish homeostasis” (p.6). Briefly, homeostasis is the non-aroused, or “walking around,” operating level of a given biological system. Thus, stress refers to the aroused state, and a stressor is what initiated the change in the bodily state away from homeostasis. Simply, stress is the manifestation of the stressor that is perceived or anticipated.

The presence of a stressor triggers a physiological response by the body. The body’s stress response is deeply evolutionarily rooted and is designed as a defense system (Cannon, 1932; Sapolsky, 2004). The nervous system oversees the body’s stress response. This system involves the rapid communication of the brain through nerves that run down the spinal cord and to organs, glands, and muscles. The nervous system consists of conscious processes, such as raising your hand when you know the answer in class, and automatic processes such as controlling your heart rate or sweating when it is hot outside. Of particular interest is the unconscious functions of the nervous system, known as the autonomic nervous system.

The autonomic nervous system is the central driver of the body’s stress response. Specifically, the autonomic nervous system is made up of two oppositional systems: sympathetic and parasympathetic. The *sympathetic system* is responsible for the onset of stress, through sending messages throughout the body to divert resources and energy only to vital parts. The manifestation of an activated sympathetic system is vasoconstriction, increased heart rate, increase blood flow to limbs, and the shutting off reproductive and digestive systems (Brodal, 2004). The *parasympathetic system* is roughly the inverse of the sympathetic system; the parasympathetic system is responsible for downregulating and adapting the stress response, with the aim to return towards homeostasis. The

manifestation of the parasympathetic system activation is vasodilation, a reduction in heart rate, and returning resources towards non-vital systems (Brodal, 2004). The automatic nervous system could be grossly conceptualized as a push and pull. In that, the sympathetic system “pushes” the body away from homeostasis and the parasympathetic system is responsible for “pulling” the body back towards homeostasis. Thus, it becomes clear that stress response can be seen as an inverted curve. The initial upslope (stress response activation) is driven by the sympathetic system, which peaks and will stay there until the activation of the parasympathetic system to start the downslope (stress recovery). The time the body spends at the peak of the stress response curve comes with a cost, known as allostatic load (McEwen, 1998).

A prolonged activation of the sympathetic nervous system is a health risk. The cost of cumulative stressors and/or a prolonged stress response is called *allostatic load* (McEwen, 1998). The roots of allostatic load come from the evolutionary wiring of the stress response that favors the odds of long-term survival by depriving the non-essential system of needed resources, but enhancing the performance of survival system causing an imbalance in the body during stress. This imbalance can add up, by wearing down the systems that are in “hyperdrive,” while concurrently starving the other systems that are not considered “vital” for short-term survival (Sapolsky, 2004). This state of accumulating a high allostatic load through prolong period of being stressed is defined as distress. The addition of allostatic load in understanding stress is crucial because it points out that stress is not inherently bad, rather it is the inability to thwart stress that causes health concerns (e.g. allostatic load).

Although there is a multitude of nervous system indicators, the present study integrated cardiovascular measures. Specifically, average heart rate reflects an increase sympathetic nervous system activation, and heart rate variability reflects the parasympathetic system. Average heart rate is calculated as the number of times a person's heart contracts in a minute (e.g. 80 beats-per-minute). Whereas, heart rate variability is the variance in the spacing between each beat of the heart over a given period. An increase in heart rate variability indicates an increased parasympathetic response (Friedman & Thayer, 1998). This is because a high-level of inter-beat variation suggests the body is more freely adapting and shifting resources, which is not the case during a period of stress. In other words, during times of stress a person's body seeks to direct resources towards a singular function (e.g. survival). Thus the demands on the body are consistent and not adaptive. Therefore, the heart beats at a more steady pace, because the body does not need to be flexible to negotiate other stimuli. A greater amount of variability can be understood as the body being nimble/agile, whereas a low level of variability is less nimble because the body has demands on a singular goal. HRV is positively related to both psychological health (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008) and physical health risks (Thayer, Ahs, Fredrikson, Sollers III, & Wager, 2012).

Stress protection. Stress-response is appropriate as an acute defense mechanism. A healthy individual is one that can promptly respond to being in a state of stress and return the body toward homeostasis, also known as a person's stress response. The primary line of theorizing in behavioral stress research is interested in buffering against the negative effects of stress, which means behaviors that help reduce the intensity of a

stressor and facilitates a timely recovery. Helgeson and Cohen (1996) argue that the primary path to improving others psychological and physical health is through stress-reducing interventions.

A promising approach towards developing stress-reducing interventions can be built around the stress-buffering hypothesis. The stress buffering hypothesis is related to stress protection through investigating behaviors that reduce the potential effects of allostatic load (Cohen & Wills, 1985). The manifestation of the stress-buffering model is reflected in two potential ways. First, if an individual receives a spike in stress antagonist hormones (e.g. oxytocin) from a given behavior (e.g. affection), that behavior is considered to provide a stress-buffering effect. Second, if the presence of behavior “undoes,” or quickly reduces, a state of stress back to homeostasis, that also is stress-buffering. In other words, behaviors that activate the parasympathetic nervous system would be considered stress-buffering behaviors. Stress is not inherently bad; rather, it is the cost the body incurs from being in a state of stress (e.g. allostatic load) for an extended period (e.g. distress) that is a health risk factor (McEwen, 1998). Thus, a behavior that reduces the allostatic load is a valuable path to understanding well-being and ultimately designing interventions to improve health (Helgeson & Cohen, 1996).

The stress buffering hypothesis claims that something such as social support “buffers (protects) persons from the potentially pathogenic influence of stressful events” (Cohen & Wills, 1985, p. 310). Burelson (1984) found that the presence of messages that express that emotional perspective-taking is present in an interaction is a significant predictor of stress-buffering. Furthermore, the presence of support may be valuable during times of acute stress, not chronic stress (Cropley & Steptoe, 2005). In other words,

supportive behaviors, such as CPT, may be particularly important during times of acute stress, such as telling a story about a stressful experience. More recently, a buffering effect was found to relate to affectionate communication as well (Pauley, Floyd, & Hesse, 2015). Much like CPT, both social support and affectionate communication are prosocial behaviors that can be both enacted and received. Building on the logic of the stress-buffering hypothesis, and framed through the findings of the benefits of social support and affectionate communication, a similar trend is expected to be seen with CPT. The following will tease out a discussion of each interactional role and explore the implications of CPT on well-being outcomes, starting with the effects of CPT for the storyteller.

Effects of CPT for the teller. I argue that the act of reflecting and communicating about an event that was stressful is a stressful act in itself. In other words, telling a story about a stressful experience will cause a state of stress. There is some evidence offered through the expressive writing paradigm and CSM research that support this claim. Within the expressive writing paradigm, Pennebaker (1993) found that the first time a person reflects upon a distressful experience s/he experiences an initial increase in stress and negative affect. Pennebaker explains this effect as causing the person to relive, or reopen, the experience that is not processed, which can be distressful. In line with that logic, there is evidence from the CSM framework that the first time expressing a distressful experience causes a change in affect for the teller. Koenig Kellas et al. (2015) found that the first time a person told a story of difficulty to a friend, the teller had a sharp rise in negative affect. They also found that sharing the same story several times to a friend related to a decrease in positive affect over time, regardless of

the story type. In other words, recounting stressful events can re-elicite stress through reliving the event. As such, hypothesis three is posed:

H5: Tellers will perceive a significant increase in stress (i.e. self-reported state anxiety) from sharing a story about a difficult experience.

Effects of CPT for the listener. Theorizing on CPT can be expanded by exploring the experiences and outcomes of the CPT-provider (i.e., “the listener”). In the following section, the focus will turn to the listener. I will first present some of the benefits and risks of being a listener, and more specifically the relationship between being a listener and CPT.

Listening to a person disclose an experience of stress can burden the listener (Shortt & Pennebaker, 1992). Lewis and Manusov (2009) argue that “providing support to others through listening and other affirming behaviors can have negative health consequences and produce high amounts of stress” (p. 285). Whereas, Brown et al. (2003) argue that there is more benefit in providing support than receiving support. This seemingly conflicting evidence can be understood by assessing CPT along two lines: the enactment of CPT and the outcome of CPT behaviors.

To begin, simply listening to an individual’s stories of distress is enough to elicit a negative emotional response in a listener (Shortt & Pennebaker, 1992). And there is a positive relationship between time spent listening to another person’s share a stressful story and the listener’s experience of negative feelings (Lewis & Manusov, 2009). Furthermore, being in the position of being a support provider in an interaction is potentially a face-threatening act, which can elicit stress (Goldsmith, 1994). In short, being in the position of simply hearing a person share a story about a difficult or stressful

experience can elicit a negative response in a person. These negative emotions are a potential source of stress. Thus, the following hypothesis argues that being in the role of listening to another person share a stressful experience in stressor.

H6: Listeners will experience a significant activation of their sympathetic nervous system (indicated by HR) at the start of the interaction.

The enactment of CPT is not simple. CPT is a task that places demand on a person cognitively and behaviorally, and subsequently is potentially stressful (Koenig Kellas et al., 2015). The act of actively considering a message from another person is complicated. Imagining what it must be like to be in that person's shoes, then encoding a message back that shows that the listener has taken the other person's perspective is a process that is demanding. The complicated nature of CPT is further reinforced by Koenig Kellas et al. (2013) claim that "perspective-taking is not a simple skill" (p.344). In short, CPT is a cognitively demanding act, requiring constant decoding and encoding of ideas and emotions (Koenig Kellas et al., 2015). Koenig Kellas et al. (2015) found a relationship between being a story-listener across time and a decrease in positive affect. Interestingly, in that study, there was a curvilinear relationship with negative affect, such that there was a significant increase in negative affect in a post-study follow-up for the listener. This suggests that the act of listening to a story can elicit negative emotional responses. Consequently, assuming the role of a listener presents an opportunity for an emotional cost to listening. Thus, the act of being a listener is stressful, and this stress is potentially further exacerbated by the enactment of CPT behaviors.

H7: Listeners enacting a high level of CPT will have a greater sympathetic response (indicated by HR) at the start of the interaction, compared to listeners enacting a low level of CPT.

Although enacting CPT behaviors may be stressful; there are benefits that can be gained from CPT. Outside of the field of communication, similar trends on the potential benefits of other prosocial behaviors are seen. In a study of 423 married couples, Brown, Nesse, Vinokur, and Smith (2003) found that being a provider of social support predicted a reduced risk of mortality. In fact, giving social support remained a significant predictor of mortality, but receiving support did not, even after controlling for the participants' health, demographics, and personality. In other words, controlling for other factors that might predict mortality, providing support was a predictor, whereas receiving was not. Similarly, in a sample comparing support providers and support receivers in the clinical setting, the supporters were found to have a significantly greater improvement in their quality of life compared to support receivers (Schwartz & Sendor, 1999). On physical health, lower blood pressure and heart rate are also related to giving of social support (Piferi & Lawler, 2006). In short, I argue that the enactment of CPT is a stressful communicative behavior, but the prosocial implications of performing a high level of CPT triggers biological stress protection mechanisms.

There is a clear trend for the health benefits of enacting a prosocial behavior, such as CPT. The health benefits might be a result of how a person's body responds to that stressful behavior. Based on the logic of the stress-buffering hypothesis, positive health outcomes are related to the ability to promptly reduce stress at the conclusion of a stressor (Cohen & Wills, 1985). Therefore, if the act of CPT is stressful, positive health

outcomes will relate to a swift reduction in stress, indicated by a decrease in sympathetic nervous system activity and an increase in parasympathetic nervous system activity.

Thus, this literature leads to the expectation that there will be positive health outcomes for a person performing a high-level CPT behaviors, and the following hypotheses are presented:

H8a: For listeners, the presence of high CPT will predict a significant decrease in sympathetic nervous system activity (indicated by HR), compared to the low CPT condition.

H8b: For listeners, the presence of high CPT will predict a significant increase in parasympathetic nervous system activity (indicated by HRV), compared to the low CPT condition.

Overall, there is promising research that points to an important relationship between CPT and psychological and social health. However, there is a lack of evidence observing a potential physiological underpinning for CPT and physical health.

Furthermore, to satisfy calls for translational research a CPT intervention was tested.

Thus, the present study utilized an experimental design and measured CPT providers' cardiovascular response during an interaction.

Chapter 2

Method

Participants

Participants ($N = 100$) were recruited at a large Midwestern university through lower- and upper-division undergraduate courses. Participants were 21.53 years old ($SD = 2.55$) on average, and mostly female² ($n = 68, 68\%$; male $n = 31, 31\%$). The participants were predominantly White ($n = 77, 77\%$), followed by Asian American/Asian/Pacific Islander ($n = 11, 11\%$), African American/Black ($n = 9, 9\%$), other ($n = 2, 2\%$), and Latin American/Hispanic ($n = 1, 1\%$). The sample consisted of first-year students ($n = 1, 1\%$), sophomores ($n = 14, 14\%$), juniors ($n = 37, 37\%$), seniors ($n = 38, 38\%$), graduate students ($n = 5, 5\%$), and one participant not in college. The random assignment resulted in 26 (52%) same-sex dyads (male-male [$n = 4, 8\%$]; female-female [$n = 22, 44\%$]) and 23 (46%) different-sex dyads³(male listener - female teller [$n = 10, 20\%$]; female listener - male teller [$n = 13, 2.6\%$]). Most participants had not met their interactional partner prior to the study ($n = 82, 82\%$), with a nine dyads stating they had met prior ($n = 18, 18\%$).

Recruitment occurred through communication courses that offered extra credit for participation in research. In the research call, participants were supplied with a link in Qualtrics to take a pre-study survey. On the first page of the pre-study survey, participants were presented an informed consent form, then a brief survey of their mental

² The over-representation of women in this study was expected. This is acceptable because prior research has indicated that women on average report higher levels of CPT and the presence of CPT does not impact health (Koenig Kellas et al., 2013), but through the manipulation of the presence of CPT an opportunity to observe the lesser seen lack of CPT in a female to female interaction will be present.

³ One dyad had a teller respond with “rather not disclose” on the question about sex

and relational well-being. After the brief survey, the participant was instructed to select a time and day to come into the laboratory to complete the study. The laboratory scheduling was done through an online scheduling program (doodle.com), with the premium feature that requires the participant's e-mail to schedule the time and this facilitated an effective system to send reminder emails. The reminder email provided information telling the participant to avoid using caffeine, alcohol, and nicotine four hours before coming to the lab (Floyd et al., 2007).

Laboratory Procedure

The laboratory session consists of four primary segments. The first segment, “condition assignment” is when the participants were randomly assigned to a role and separated into separate rooms. The second segment, “baseline,” includes when the teller’s story was decided upon, and the listener was randomly assigned to perform either low- or high-CPT. The third segment, “interaction,” was when the two participants were reunited and had a 10-minute interaction that was video and biologically recorded. The fourth segment, “recovery,” was a 10-minute post-interaction cardiovascular recording where the participants also took a survey that had them reflect on the interaction.

Condition assignment. When the participants arrived at the laboratory, they sat down in two armchairs facing each other at right angles. They then received a verbal description of laboratory procedure. Participants were then randomly assigned to one of two roles: teller or listener. The role was assigned by presenting the participants with two identical playing cards. The cards were shuffled between each session and placed face down (the researcher was blind to which role was under each card). The face of one card read “Teller,” and the other card read “Listener.” The card each participant selected was

his/her randomly assigned a role for the rest of the study. Once the participants were assigned their roles, they were directed to separate rooms.

Pre-interaction. When the participants were separated into their respective rooms, each was seated in front of a computer with a survey already loaded. Before the listener started the pre-interaction survey, an ear clip was attached to start the 10-minutes baseline cardiovascular recording. Regardless of condition, the researcher instructed the participant to complete his/her survey, then to sit and relax until the researcher comes back. The second page of the survey checked if the participant has recently consumed caffeine, alcohol, or nicotine by asking him/her the last time s/he consumed each product (see Table 1). The third page presented the participant with a scale assessing his/her current positive and negative affect. The fourth page was where the survey varied depending on the participant’s assigned role.

Table 1. Frequency Distribution of Listener’s Caffeine, Alcohol, and Nicotine Consumption Before Lab Session.

	Caffeine	Alcohol	Nicotine
Do not consume caffeine	15	11	10
1 hour	4	0	1
2 hours	1	0	0
3 hours	3	0	0
4 hours	4	0	0
5 hours	7	0	0
6 hours	5	0	0
Over 6 hours	61	39	9

Teller. The teller was presented instructions to pick a recent stressful event to share with the listener, instead of a CPT intervention. There was no manipulation present in the teller’s pre-interaction survey. The researcher used the criteria listed below to help

the participant select an appropriate stressful experience to share. The instrument broadly involved the tell writing a brief statement describing what s/he decided to share. The tellers choose topics such as: school ($n = 25$), social ($n = 6$), travel ($n = 4$), family ($n = 4$), work ($n = 3$), sports ($n = 2$), health ($n = 2$), and other ($n = 4$). After the description, the teller was presented a series of questions evaluating the topic s/he chose. A majority of the events occurred less than one month ($n = 20$) of the interaction, followed by approximately one month ago ($n = 17$), two months ago ($n = 3$), three months ago ($n = 4$), and four months to three years ago ($n = 6$). On average, participants rated their story as moderately upsetting ($M = 5.86$, $SD = 2.73$)⁴, a moderately significant experience in life ($M = 5.24$, $SD = 2.65$), moderately resolvable ($M = 6.44$, $SD = 2.67$). Almost half the tellers stated they are “moderately likely” ($n = 22$) to talk about the experience with others. Just less than half the tellers have spent “a moderate amount” ($n = 22$) amount of time talking out loud about the experience, followed by “a little” ($n = 14$), “a lot” ($n = 10$), “a great deal” ($n = 2$), and “none at all” ($n = 2$).

Listener. The listener responded to the same pre-interaction measures as the teller. After completing the opening items, the listener was randomly assigned to one of two conditions: high-CPT or low-CPT. Random assignment occurred through randomization display logic built into Qualtrics. The intervention consisted of three sections: instructions, definition, and description with examples. In the instructions, participants were told to either: “enact and display behaviors that communicate that you are perspective-taking” (e.g. high-CPT) or “NOT enact and display behaviors that communicate that you are perspective-taking” (e.g. low-CPT). Just below the

⁴ Participants responded on a 10-point Likert-type scale, where the higher the number the more the participant agrees with the statement.

instructions, in the definition section, both conditions were presented the same definition of “perspective-taking” was presented stating “the ability to place yourself in another person’s shoes.” The third section, description, is the second variation between the two conditions. Consisting of two lists that varied the descriptions of two dimensions of CPT: (in)attentiveness to other’s perspective and (dis)confirmation of other’s perspective. In the high-CPT condition (see Appendix A), participants saw communicative behaviors related to “attentiveness to other’s perspective” (e.g. “ask about his/her behavior”) and “confirmation of other’s perspective” (e.g. “statements affirming agreement”), whereas the low-CPT condition (see Appendix B) was behaviors related to “inattentiveness to other’s perspective” (e.g. “ignore the other person’s ideas/perspective”) and “disconfirmation of other’s perspective” (e.g. “statements that how you do not agree with the other person’s perspective” (Koenig Kellas et al., 2013).

After the participant had been presented with these instructions, two multiple choice questions were presented to ensure s/he understood his/her role as a listener. One question asked: “Your role during the interaction requests you do which of the following:” (a) “explicitly ask questions about the other person’s perspective” or (b) “avoid asking questions about the other person’s perspective.” In the high-CPT condition, choice “a” was the correct answer and in the low-CPT condition, choice “b” was the correct response. The second question asked: “Overall, your role in the following interaction is to do your best to place yourself in (high CPT-“the other person’s”; low CPT- “your own”) shoes during the following interaction. Do you understand your role?” The participant responded simply “yes” or “no.” After the participant had answered the question, the survey showed him/her the correct answer, based on condition (high-CPT -

“yes”; low CPT- no). The final page then appeared, wherein the condition-based instructions were again presented.

Interaction. Upon the completion of the baseline recording and surveys, the researcher started the video recording of the interaction, then re-entered the room, and the participants moved back to their places on the armchairs. Once the listener sat down in the armchair, the second cardiovascular recording was started. The researcher then stated: “you two will now have a 10-minute interaction. Feel free to introduce yourselves to each other to begin; then I request that the you [the teller] share his/her decided upon stressful experience. It is OK if the conversation goes to other topics; I just request you begin with the story the teller wrote about.” The researcher then left the room, and the participants interacted for an uninterrupted ten minutes⁵. At the completion of the ten-minute interaction, the video recording was stopped, and the researcher re-entered the room to inform the participants the interaction was complete. At that time, the teller was instructed to return to his/her original room and completed the survey that was loaded on the computer. Concurrently, the researcher paused the cardiovascular recording and moved the listener back to the computer in his/her original room.

Post-interaction. During the ten-minute post-interaction phase of the study, the participants completed a survey about the previous interaction. The post-interaction survey began with a measure of both participants’ positive and negative affect. The next page consisted of questions asking the participant to evaluate the interaction. The teller was presented questions asking him/her to rate his/her perception of the listener’s CPT,

⁵ Koenig Kellas et al. (2017) used a eight mintue interaction in their development of a observational coding system for CPT. Ten minutes was choosen to have equal time intervals of cardiovascular measurement between the stages.

and if s/he found the interaction useful and satisfying. The listener was asked questions about how well they felt they enacted CPT. The researcher told the participants to sit back and relax once they had finished the survey.

Measures

Stressful experience topic selection. To select the topic of discussion, the teller completed an adapted version of the Life Experience Questionnaire (LEQ; Lyubomirsky, Sousa, & Dickerhoof, 2006). Broadly speaking, this scale is used to assist in identifying a difficult topic to discuss or write about (Koenig Kellas et al., 2015). The present version had the participant think of “recent stressful situations” (Appendix C). The participant was reminded that the experience s/he should be something that s/he is willing to discuss with the other person. The participant was then presented a page on the online survey that had a single empty text field that s/he entered a brief statement or phrase about the stressful experience. After the participant listed the stressful experiences, s/he assessed it through seven items that measured his/her perceptions of and communication about the experience. The first item asked the participant to identify “how long ago did the stressful experience occur?” The next six items had the teller respond on a 10-point Likert-type scale to items about how significant is the experience and how much time have s/he spent talking about the experience. By telling the participant to discuss a “recent stressful event,” the aim was to have an experience that s/he has not had much time or discussions to perform much CSM about this event.

Positive and negative affect. The participants’ current affective state was measured with the positive and negative affect scale (PANAS, Watson, Clark, & Tellegen, 1988). This 20-item scale measured the participants’ current positive and

negative affect, where higher scores reflected higher levels of positive or negative affect, respectively. Participants responded on this five-point scale (1 = “not at all”; 5 = “extremely”) to affect terms such as: “interested,” “distressed,” and “alert.” The scale was reliable for both the listener and teller (see Table 2).

Communicated perspective-taking. The participant’s perception of CPT in the interaction was measured with Koenig Kellas et al.’s (2012) other-report CPT scale. In previous research, the scale was originally developed for established relationships to report on their perceptions of their partner’s CPT, but for this study, the language was changed to ask for perceptions about within the context of the study. Furthermore, there was a slight variation in the framing of the items between the conditions. The listener version was modified to assess how well the listener felt s/he enacted CPT behaviors (e.g. “I let the other person tell his/her version of the story”). The teller version was modified to reflect the level of CPT behavior s/he perceived the listener of performing (e.g. “The other person let me tell my version of the story”). The current study also was reliable for both the listener and teller (see Table 2).

In addition to the CPT scale, the participants also responded to two items developed from the CPT rating book: acknowledgment and confirmation. Each item asked the participants to select the statement that best represented his/her perception of the interaction (Appendix E & G). For example, a teller was asked: “Overall, how much would you say the other person confirmed your perspective? Please place a mark next to the statement that best reflects your interaction.” This prompt had a list of five different statements, with a high level of confirmation represented with: “my perspective was always or almost always acknowledged and confirmed (e.g. ‘oh that’s a good point;’

‘Yes, I can see where you would feel that way;’ nodding, smiling at your perspective); whereas a low level of confirmation statement was: “S/he consistently disconfirmed my experience. S/he continually disagreed with my comments. Disagreements were frequent and potentially negative.” The two single-item measures were scaled so that the higher the number, the greater level of the concept was perceived in the interaction (see Table 2).

General health. The participants reported on their frequency of feelings of stress and stress-related symptoms in the past month on the Perceived Stress Scales (PSS; Cohen, Kamarck, & Mermelstein, 1983). The scale contains 10-items and participants reported on a five-point Likert-type scale anchored with “never” to “very often,” such that the higher the number, the more perceived stress the respondent is experiencing. Items consisted of prompts such as: “how often have you felt nervous and ‘stressed’?” “how often have you found that you could not cope with all the things that you had to do?” and “how often have you been angered because of things that were outside of your control?” The current study was reliable for both the listener and teller (see Table 2).

The second measure of general health was through an Anxiety State Scale (Spielberger, Gorsuch, & Lushene, 1970). The scale was given to the teller pre- and post-interaction and the listener post-interaction. The scale consisted of 20 items on a four-point scale anchored with “very much so” to “not at all.” The scale requested participants report on their present feelings on items such as: “I feel tense,” “I feel at ease,” and “I feel nervous.” The scale was highly reliable for both the teller and the listener (see Table 2).

Interactional satisfaction. Interactional satisfaction was measured with two measures: a single-item satisfaction question and the interpersonal communication satisfaction scale (IPCS; Hecht, 1978). The first measure was a single item that asked participants: “Overall how satisfied were you with the interaction?” This item had participants respond on a five-point scale, anchored with “not satisfied at all” to “completely satisfied.” The tellers ($M = 4.04$; $SD = 1.03$) and listeners ($M = 3.92$; $SD = 1.23$) were generally satisfied with the interaction (refer to Gardner, Cummings, Dunham, & Pierce, 1998). The second measure was a 16-item scale with a five-point Likert-type response choice anchored with “strongly agree” to “strongly disagree.” The scale consisted of items such as “I would like to have another conversation like this one” and “I felt I could talk about anything with the other person.” This scale was only given to the teller and was highly reliable (see Table 2). Furthermore, participants were asked to report on how different the interaction felt compared to his/her typical interactions with a friend. Participants reported on a single item five-point scale anchored with “very different” to “similar” and lower scores reflected the participant’s perceiving the interaction as different from a typical interaction.

Table 2. Means, Standard Deviations, and Reliability of Measures

Variables	Listener		Teller	
	Pre-Interaction	Post-Interaction	Pre-Interaction	Post-Interaction
Positive Affect (PANAS)				
<i>M (SD)</i>	2.83(.63)	2.77(.95)	2.82 (.59)	2.90
α	.85	.92	.88	.94
Negative Affect (PANAS)				
<i>M (SD)</i>	1.77 (.47)	1.61 (.42)	2.04 (.46)	1.63 (.57)
α	.78	.76	.78	.84
Perceived Stress Scale				
<i>M (SD)</i>	---	2.83 (.66)	---	2.68 (.57)
α	---	.84	---	.84
Anxiety State				
<i>M (SD)</i>	---	3.68 (.63)	3.51 (.57)	3.59 (.55)
α	---	.94	.88	.92
Interpersonal Communication Satisfaction Scale				
<i>M (SD)</i>	---	---	---	3.70 (.79)
α	---	---	---	.92
Communicated Perspective Taking Scale				
<i>M (SD)</i>	---	4.12 (.67)	---	4.11 (.69)
α	---	.91	---	.91
Confirmation of Perspective				
<i>M (SD)</i>	---	4.36 (.92)	---	4.20 (1.02)
Acknowledgment of Perspective				
<i>M (SD)</i>	---	4.32 (1.15)	---	4.18 (1.08)
Different from Typical Interaction				
<i>M (SD)</i>		2.88 (1.51)		3.16 (1.27)

Physical Stress. The participants' stress was a function of their heart rate averages (HR) and variability across the three laboratory segments (i.e. pre-interaction, interaction, and post-interaction). The HR was continuously measured with an infrared ear clip (e.g., emWave Ear Sensor 6010-E and emWave Sensor Module 6010-M). A benefit of the ear clip was that it is a non-invasive way to measure HR (Floyd, 2004). The HR signals were recorded through *emWave Pro* software (Boulder Creek, CA), and that raw data was exported and processed using *Kubios HRV Standard* (v2.0, Kuopio, Finland). Each of the three segments was a new data file that required a stop and start between segments (i.e. at the end of the “pre-interaction” the researcher will click the stop recording button and then click the start recording button just before the “interaction” begins). Each segment was ten minutes long, so the continuous HR was segmented into averages for every two minutes (see Table 3). The same segmenting occurred for HRV and was evaluated through the Root Mean Square of Successive Differences (RMSSD; Hildebrandt, McCall, Engen, & Singer, 2016). The process of segmenting each stage of the study into two-minute intervals created five unique HR data points for each segment of the laboratory session for each participant.

Chapter 3

Results

Descriptive Statistics

To ensure that listeners in the different conditions did not significantly vary on baseline measures a series of t-tests and repeated measures ANOVA was performed. First, two t-tests were performed on the teller's and the listener's pre-interaction positive and negative affect (see Table 3), and repeated measure ANOVAs were performed on listener's baseline HR⁶ and HRV (see Table 4). These series of tests reveal that there was not a significant difference between the two conditions before the interaction. Furthermore, there was a significant difference between the two conditions on participants' perception of how similar the interaction is with a "typical" interaction with a friend. A t-test revealed that listeners in the low-CPT condition ($M = 2.24, SD = 1.42$) reported the interaction was significantly more different than a typical interaction when compared to the high-CPT condition ($M = 3.52, SD = 1.33; t(48) = -3.29, p < .01$). The second t-test revealed that the tellers in the low-CPT condition ($M = 2.80, SD = 1.44$) reported the interaction was significantly more different than a typical interaction when compared to the high-CPT condition ($M = 3.52, SD = .96; t(41.82) = -2.08, p < .05$).

⁶ The first baseline HR measure was entered as a covariate to account for the law of initial values (Jin, 1992).

Table 3. Pre-Interaction Check Between Conditions

		M (SD)	Statistical Test
Listener's Positive Affect	Low-CPT	2.77(.70)	$t(48) = -.57, p = .57$
	High-CPT	2.88 (.66)	
Listener's Negative Affect	Low-CPT	1.80 (.50)	$t(48) = .47, p = .63$
	High-CPT	1.74 (.45)	
Teller's Positive Affect	Low-CPT	2.84 (.54)	$t(48) = .13, p = .90$
	High-CPT	2.81 (.65)	
Teller's Negative Affect	Low-CPT	2.10 (.52)	$t(48) = .85, p = .40$
	High-CPT	2.00 (.39)	
Teller's Self-Reported Stress	Low-CPT	3.43 (.66)	$t(48) = -.89, p = .38$
	High-CPT	3.58 (.47)	

Table 4. Pre-Interaction Check of HR and HRV Before Interaction

	HR_{time 2}	HR_{time 3}	HR_{time 4}	Test of Interaction Effect
Low-CPT (<i>n</i> = 13)	81.91 (9.34)	80.64 (9.20)	79.26 (8.41)	$F(2,48) = .44, p = .96$
High-CPT (<i>n</i> = 14)	85.32 (15.74)	83.91 (15.82)	82.67 (15.83)	
Total (<i>n</i> = 27)	83.68 (12.93)	82.34 (12.92)	80.82 (12.66)	
	HRV_{time 2}	HRV_{time 3}	HRV_{time 4}	
Low-CPT (<i>n</i> = 13)	68.81 (28.71)	91.41 (44.89)	93.02 (63.57)	$F(2, 48) = 1.71, p = .19$
High-CPT (<i>n</i> = 14)	77.11 (31.16)	84.09 (35.56)	74.65 (23.39)	
Total (<i>n</i> = 27)	73.11 (29.72)	87.61 (39.70)	83.50 (47.19)	

HR is an indicator of sympathetic nervous system response, and HRV is an indicator of parasympathetic nervous system response

Hypothesis One

Hypothesis one predicted that tellers' perceptions of CPT would relate to his/her perceived health. To test this research question, two different analysis were performed for the teller. First, a correlation was performed using tellers' perceptions of CPT and the second test compared tellers in the high-CPT condition with the low-CPT condition. This revealed that tellers' perception of CPT was negatively related to their mental health symptoms ($r = -.37, p < .01$). In other words, the more CPT related behaviors his/her partner displayed during the conversation, the less mental health symptoms the teller reports experiencing in the past week. To further investigate this question, an independent t-test was performed. The two CPT conditions were treated as the independent variable, and the teller's self-report mental health symptoms were treated as the dependent variable. This revealed that the high-CPT condition ($M = 2.57, SD = .57$) was not a significantly different from the low-CPT condition ($M = 2.79, SD = .56$) on the teller's reports of mental health symptoms: $t(48) = 1.36, p = .18, 95\%CI[-.01, .04], d = .39$. The previous two tests suggest that the teller's mental health symptoms are related to his/her perception of CPT, but mental health did not significantly vary solely based on the condition. Thus, hypothesis one was partially supported.

To further investigate the partial support for hypothesis one, additional analysis was performed, assessing change in affect. Specifically, teller's perceived health took the form of assessing change in positive and negative affect based on condition. A one-way repeated measure ANOVA was performed using the negative affect score from the PANAS pre- and post-interaction as the within-subject variables and the assigned condition as the between-subject factor (see Table 5). This revealed that there was not a

significant difference between the conditions for change in negative affect, $F(1, 48) = 3.23, p = .08$. A similar analysis was repeated, but with positive affect scores from PANAS instead of the negative affect scores. This also revealed that there was not a significant difference between conditions for change in positive affect, $F(1,48) = .75, p = .39$. Thus, there was not a significant change a teller’s positive and negative affect between the conditions.

Taking all the analyses of hypothesis one together the following findings are revealed. Of the four analysis, there was only one significant relationship. Specifically, there was a significant positive correlation between tellers’ perceptions of CPT and self-reported frequency of mental health symptoms. Whereas, there was not a significant difference between the conditions with respect to reports of mental health symptoms, as well as there was not a significant difference in change in positive and negative affect for the tellers. The discrepancy between a significant correlation with perception but not condition will be unpacked in the discussion.

Table 5. Change in Positive and Negative Affect

	Positive Affect		Negative Affect	
	Pre-Interaction	Post-Interaction	Pre-Interaction	Post-Interaction
High-CPT (n =25)	2.81 (.65)	2.96 (1.04)	2.00 (.39)	1.48 (.32)
Low-CPT (n = 25)	2.84 (.54)	2.83 (.92)	2.10 (.52)	1.78 (.55)
Total (n = 50)	2.82 (.59)	2.90 (.97)	2.04 (.46)	1.63 (.47)

Hypothesis Two

Hypothesis two predicted that tellers would perceive an interaction with high-CPT more favorably, compared to an interaction with low-CPT. Specifically, three claims were generated for hypothesis two. The first claim of hypothesis two predicted a significant difference between the two conditions on tellers' general satisfaction with the interaction. The second claim of hypothesis two predicted that there will be a significant difference in tellers' satisfaction with the communication in the interaction. The third claim of hypothesis two predicted that there will be a positive correlation between tellers' perception of CPT and their satisfaction with both the interaction and the communication. The following will present the analysis and results for each of the three claims related to hypothesis two respectively.

First, two independent t-tests were performed with the assigned condition (high-CPT or low-CPT) as the independent variable. In the first t-test, the teller's self-reported overall satisfaction with the interaction was treated as the dependent variable. This revealed that tellers' satisfaction with the interaction was significantly higher in the high-CPT condition ($M = 4.40, SD = .82$), compared to the low-CPT condition ($M = 3.68, SD = 1.11; t(48) = -2.62, p < .01, 95\%CI[-1.27, -.17], d = .74$). Thus, the first claim of hypothesis two was supported.

The second t-test tested the teller's satisfaction with specifically the listener's interpersonal communication during the interaction. The second t-test revealed that tellers in the high-CPT condition ($M = 4.02, SD = .43$) were significantly more satisfied with the listener's interpersonal communication compared to the tellers in the low-CPT condition ($M = 3.38, SD = .94; t(33.9) = -3.10, p < .01, 95\%CI[-1.06, -.22], d = .88$). Thus, the second claim of hypothesis two was supported.

Furthermore, a series of correlations were conducted testing relationships between the teller's perception of CPT and his/her evaluation of the interaction. The first correlation revealed a significant positive relationship between the teller's perception of CPT and overall satisfaction with the interaction and his/her satisfaction with the interpersonal communication in the interaction (see Table 6). Thus, the third claim of hypothesis two was supported.

Taking the three claims related to hypothesis two together, hypothesis two is supported. Meaning that there was a significant relationship between CPT and tellers' evaluation of the interaction. Specifically, tellers in the high-CPT condition reported greater general satisfaction with the interaction and greater satisfaction with the communication in the interaction. Furthermore, tellers' perception of the presence of CPT in the interaction had a significant positive correlation with the tellers' general satisfaction and satisfaction with the communication. Thus, hypothesis two is broadly supported.

Hypothesis Three

Although hypothesis two focused on tellers' satisfaction with the interaction, hypothesis three focused on the listeners' satisfaction with the interaction. Specifically, hypothesis three was focused on the listeners and how CPT would affect their evaluation of the interaction. The third hypothesis was assessed through two claims. The first claim was that there would be a difference between the conditions on listeners' satisfaction with the interaction. The second claim was that there would be a positive relationship between listeners' perception of their CPT performance and satisfaction with the interaction.

The first claim of hypothesis three was assessed using a t-test, treating the condition as the independent variable and the listeners’ reports of satisfaction with the interaction as the dependent variable. This revealed listeners in the high-CPT condition ($M = 4.48, SD = .77$) were significantly more satisfied with the interaction compared to listeners in the low-CPT condition ($M = 3.36, SD = 1.35; t(38.12) = -3.60, p < .01, 95\%CI[-1.75, -.49], d = 1.02$). Thus, the first claim of hypothesis three was supported.

To test the second claim of hypothesis three, a series of correlations were conducted (see Table 4). Results revealed a significant strong positive relationship between the listeners’ perception of their performance of CPT and their communication satisfaction (see Table 6). Thus, the second claim of hypothesis three was supported.

Table 6. Bivariate Correlations of Perception of CPT with Interaction Evaluations

	Listener’s Communication Satisfaction	Teller’s Communication Satisfaction	Teller’s Interpersonal Communication Satisfaction
Listener’s CPT	$r = .79^{***}$	$r = .37^{**}$	$r = .41^*$
Teller’s CPT	$r = .31^*$	$r = .79^{***}$	$r = .87^{***}$

* $p < .05$, ** $p < .01$, *** $p < .001$

Hypothesis Four

Hypothesis four functioned as a manipulation check. Specifically, hypothesis four predicted that tellers would report significantly higher levels of perceived CPT from the listener in the high-CPT condition, compared to the listeners that were prompted to display low-CPT. To test this hypothesis, an independent t-test was performed. The t-test revealed that there was a significant difference between tellers’ perception of CPT based on the prompt the listeners were assigned; $t(31.96) = -4.07, p < .001, 95\% CI [-1.00, -$

.33] , $d = 1.15$. Specifically, tellers in the high-CPT condition perceived a high level of CPT ($M = 4.45$, $SD = .31$), compared to the tellers in the low-CPT condition ($M = 3.79$, $SD = .76$). Thus, hypothesis four was initially supported with respect to a difference between conditions on tellers' perceptions of CPT.

To further assess tellers' perception of CPT two additional single item measures were compared between the conditions. Furthermore, there was a significant difference in the teller's perception of experiencing confirmation of his/her perspective ($t(31.38) = -3.39$, $p < .01$, $95\%CI[-1.28, -.32]$, $d = .96$) and acknowledgement of his/her perspective ($t(27.34) = -3.56$, $p < .01$, $95\%CI [-1.64, -.44]$, $d = 1.01$). With respect to confirmation of perspective tellers in the high-CPT condition reported significantly more CPT ($M = 4.76$, $SD = .44$), compared to the low-CPT condition ($M = 3.96$, $SD = 1.10$). With respect to acknowledgment of perspective tellers in the high-CPT condition reported significantly more AP ($M = 4.84$, $SD = .37$), compared to the low-CPT condition ($M = 3.80$, $SD = 1.41$). Thus, hypothesis four was further supported.

In an additional analysis, I tested if a listener assigned to perform a high- or low-CPT would report perceiving a significant difference in his/her performance of CPT behaviors. To test this, a similar analysis of hypothesis one was performed, but the listener reports of his/her performance of CPT was used as the dependent variables. This revealed that there was a significant difference in listeners perceived performance of CPT ($t(34.23) = -3.97$, $p < .001$, $95\%CI [-1.03, -.33]$ $d = 1.16$). Specifically, listeners in the high-CPT condition ($M = 4.45$, $SD = .37$) reported performing a greater level of CPT compared to listeners in the low-CPT condition ($M = 3.77$, $SD = .77$). Furthermore, listeners in the high-CPT condition also reported significantly more CP ($t(30.09) = -5.37$,

$p < .001$, 95% $CI [-1.70, -.76]$, $d = 1.52$; $M = 4.83$, $SD = .38$) and AP ($t(39.14) = -4.92$., $p < .001$, $CI = -1.75, -.73$, $d = 1.39$; $M = 4.80$, $SD = .65$), compared to the low-CPT condition respectively ($M_{Confirmation} = 3.60$, $SD_{Confirmation} = 1.08$; $M_{Acknowledgement} = 3.56$, $SD_{Acknowledgement} = 1.08$). Thus, listeners reported a significant difference in their perception of CPT when comparing the two conditions. The similar trend between perceptions of CPT is further bolstered by a significant positive correlation between teller and listener reports of CPT in the interaction; $r = .39$, $p < .01$. In other words, as listeners reported performing more CPT behaviors, tellers concurrently perceived more CPT behaviors.

Hypothesis Five

Hypothesis five predicted that tellers would report a significant increase in stress from sharing a story about stress. To test this hypothesis, a repeated measure t-test was performed using the teller's self-reported anxiety pre-interaction to post-interaction. The test revealed that, regardless of the condition, there was not a significant change in self-reported stress from pre-interaction to post-interaction ($t(49) = -1.21$, $p = .23$). Thus, hypothesis five was not supported.

In further analysis, change in tellers' stress was tested based on condition. A repeated measures ANOVA was performed to test if there was a significant interaction between participant's perception of stress and condition (see Table 7). This revealed that there was not a significant interaction between tellers' report of stress and condition, $F(1, 48) = .85$, $p = .36$, $partial\ Eta\ squared = .02$, $observed\ power = .15$. Thus, there was not a significant change in self-reported stress for tellers.

Taking the two analyses together there was not a significant change in perceived stress for the listeners. Specifically, teller's in both conditions did not report a significant change in perceived stress. Furthermore, there was not a significant change in perceived stress of the tellers when comparing the two conditions. Thus, hypothesis five was not supported.

Table 7. Teller's Self-Reported Stress

	Pre-Interaction <i>M (SD)</i>	Post-Interaction <i>M (SD)</i>
High-CPT (<i>n</i> = 25)	3.58 (.47)	3.73 (.44)
Low-CPT (<i>n</i> = 25)	3.43 (.66)	3.45 (.62)
Total (<i>n</i> = 50)	3.51 (.57)	3.59 (.55)

Hypothesis Six

Hypothesis six predicted that, regardless of the condition, listeners would experience a significant increase in stress (e.g. HR) when they listened to the tellers' stressful experience. To test this, a one-way repeated measure ANOVA was conducted. For this analysis, five time segments were used, the last time block of the baseline measurements and the four two-minute segments of the interaction measurements. Additionally, the first baseline HR measures were entered as a covariate to account for the law of initial values (Jin, 1992). The law of initial values accounts for the biological variation in individuals homeostatic HR. This test revealed that there was a significant omnibus effect; $F(4,100) = 3.55, p < .01, \text{partial } \eta^2 = .12, \text{observed power} = .85$. Thus, hypothesis six was supported (see Table 8).

To further investigate changes in HR, a series of repeated measure ANOVAs were conducted between each time-period sequentially, using the first baseline HR

measure as a covariate. This test revealed that the only significant change in HR segment was from the final baseline measurement to the first interaction HR segment ($F(1,25) = 4.82, p < .05, \text{partial } \eta^2 = .16, \text{observed power} = .56$). Thus, it appears that there was a significant initial increase in average HR at the start of the interaction and after the initial increase the listener's HR plateaued (see Figure 1).

Hypothesis Seven

Hypothesis seven predicted that displaying a high level of CPT would be more stressful than displaying a low level of CPT. Specifically, listeners in the high-CPT condition would have greater sympathetic system activation (represented by average heart rate), compared to listeners in the low-CPT condition. To test this hypothesis, a mixed-design repeated measure ANOVA was performed. For this analysis, the experimental conditions (high-CPT and low-CPT) was utilized as the between-subjects variable, the final measure of HR and the four interaction HR were utilized as the within-subject repeated measure (as a measure of SNS activation). Additionally, the first baseline HR measures were also entered as a covariate to account for the law of initial values (Jin, 1992). This test revealed that there was not a significant difference between groups in SNS activation from baseline through the interaction, $F(4, 63.78) = .909, p = .43$ (see Table 8; Figure 1). Thus, hypothesis seven was not supported.

Table 8. Listener's Heart Rate From the Last Baseline Measurement to the End of the Interaction

	Baseline HR 4 (7-9min.)	Interaction HR 1 (1-3min.)	Interaction HR 2 (3-5 min.)	Interaction HR 3 (5-7min.)	Interaction HR 4 (7-9min.)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
High-CPT (<i>n</i> = 14)	82.27 (15.83)	84.99(15.09)	83.79(13.86)	85.20(14.10)	84.51 (13.59)
Low-CPT (<i>n</i> = 13)	79.26 (8.41)	84.63(6.78)	84.24(9.55)	83.39(8.30)	81.34(8.49)
Overall (<i>n</i> = 27)	80.82 (12.66)	84.81(11.62)	84.00(11.75)	84.33(11.49)	82.98 (11.32)

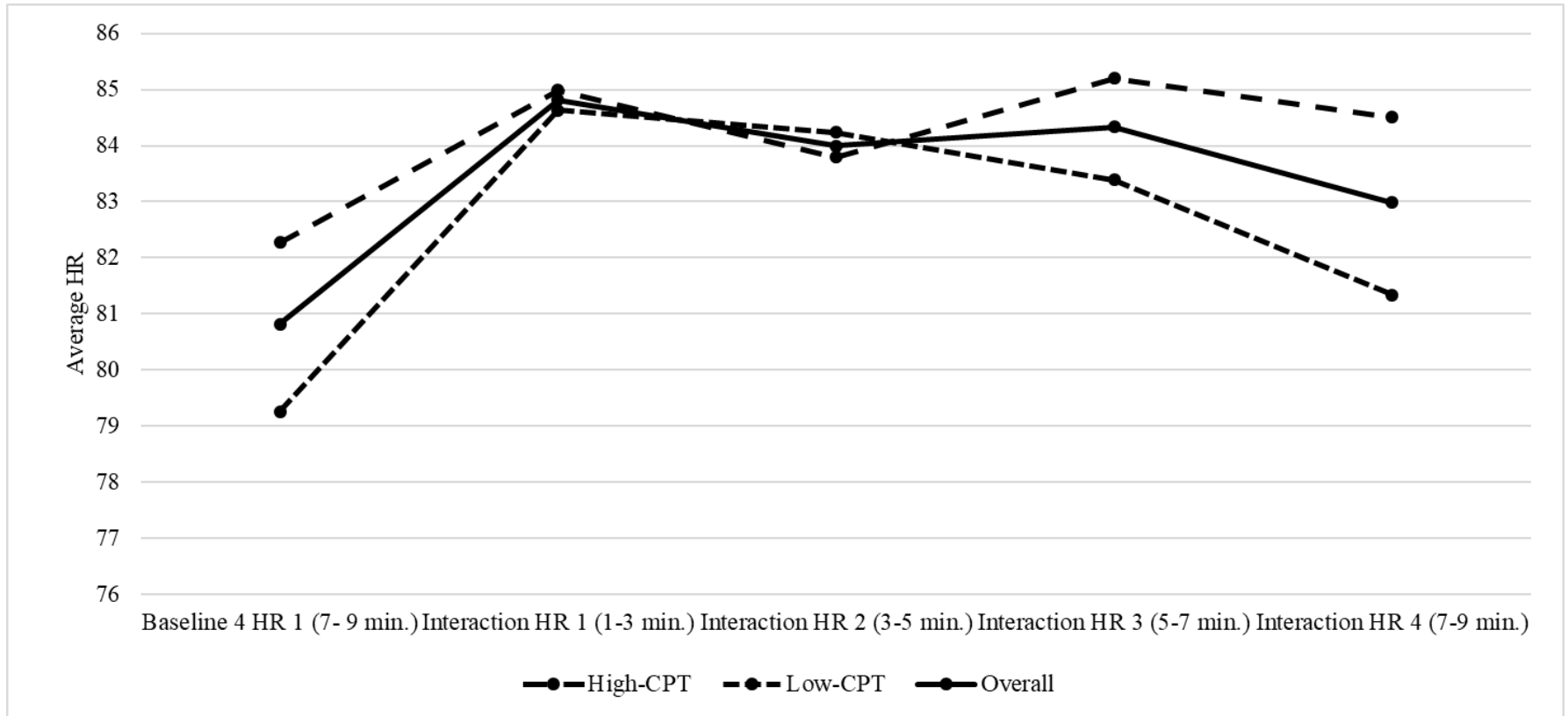


Figure 1. Interaction initiation average HR. This figure shows the average HR for the transition from the final baseline recording into the interaction.

Hypothesis Eight

Hypothesis eight predicted that participants in the high-CPT condition would display great parasympathetic (e.g. HRV) response during the recovery period compared to the low-CPT condition. To test this hypothesis, a mixed-design repeated ANOVA was performed. The recovery period consisted of three two-minute measurements recorded from one-minute after the interaction and ended at minute seven. This produced a total of three unique measurements of HRV across time. Furthermore, for this analysis, the experimental condition (high-CPT and low-CPT) was utilized as the between-subjects factor, and the three HRV measurements were used as the within-subject factor. The analysis revealed that there was a significant interaction effect ($F(2,52) = 3.78, p < .05, \text{partial } \eta^2 = .13, \text{observed power} = .66$) between the conditions and HRV. This significant interaction effect reveals that participants in the high-CPT condition had a significant increase in HRV compared to those in the low-CPT condition (see Table 9; Figure 2). Thus, hypothesis eight was supported.

Table 9. Listener's HRV During Recovery Period Based on Condition

	Recovery HRV 1 (1-3minutes) <i>M (SD)</i>	Recovery HRV 2 (3-5 minutes) <i>M (SD)</i>	Recovery HRV 3 (5-7minutes) <i>M (SD)</i>
High-CPT (<i>n</i> = 13)	70.41 (32.64)	71.32 (27.29)	83.19 (40.51)
Low-CPT (<i>n</i> = 15)	66.05 (22.25)	65.61 (27.82)	59.39 (23.32)

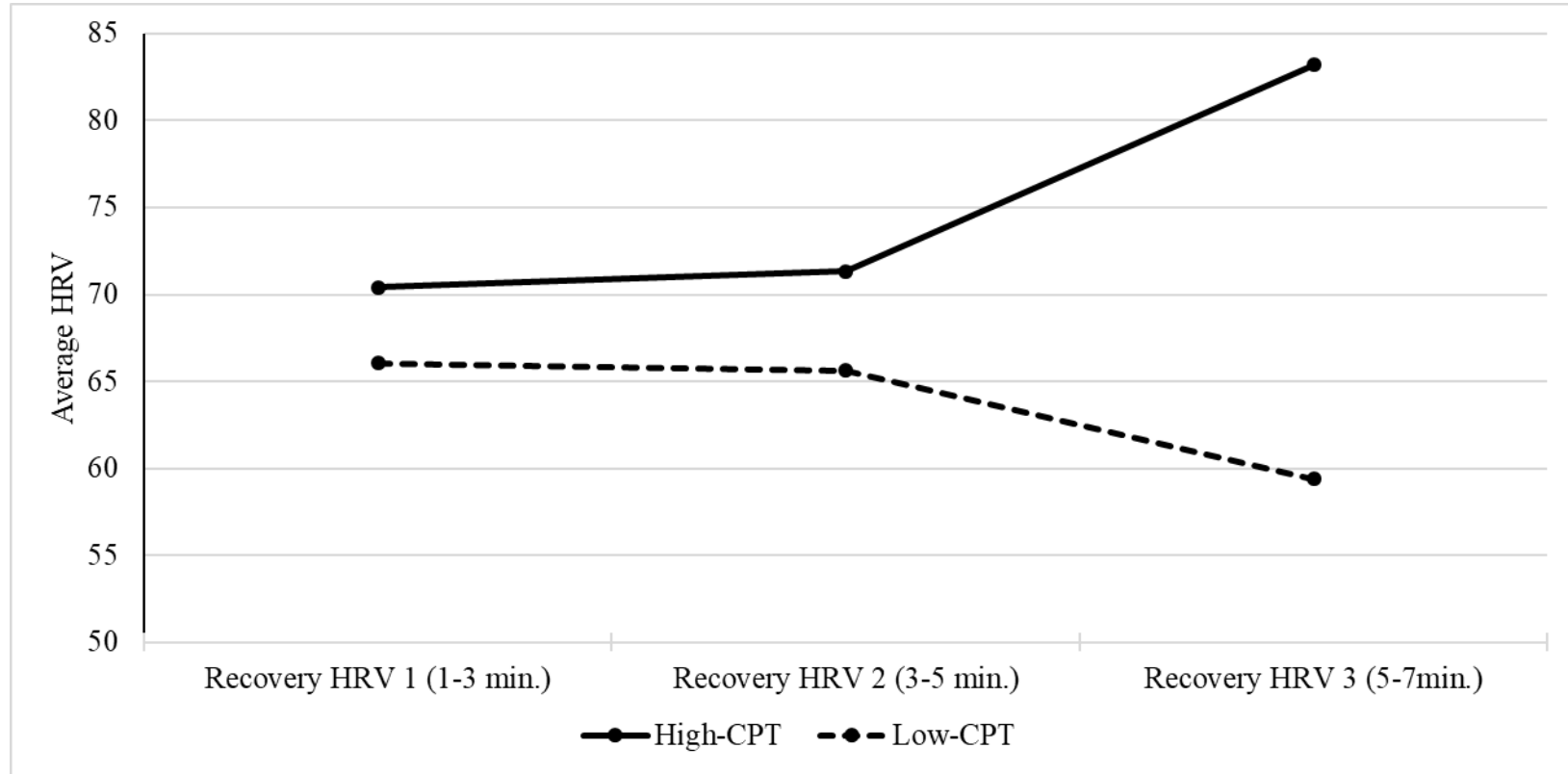


Figure 2. HRV during recovery. This figure represents the difference in HRV between the two conditions during the recovery period.

Further analysis conducted to observe if there was a significant difference between the conditions on the sympathetic system (e.g. HR). To test this, a similar procedure used in hypothesis six was performed. To test this hypothesis, a mixed-design repeated ANOVA was performed. The recovery period consisted of three two-minute measurements recorded from one minute after the interaction and ended at minute seven. In addition to the three recovery measurements, the last interaction period measurement was also included. Furthermore, the first HR measurement from the baseline period was included to adhere to the law of initial values (Jin, 1992). This produced a total of four unique measurements of HR across time. Furthermore, for this analysis, the experimental condition (high-CPT and low-CPT) was utilized as the between-subjects factor, and the three HRV measurements were used as the within-subject factor. This test revealed that there was not a significant main effect ($F(1, 22) = .021, p = .89$) and there was not a significant interaction effect ($F(1, 22) = 6.04, p < .05, .$). There was not a significant difference between conditions on the listener's HR. It did appear that there was a steep initial decline in HR from the very end of the interaction to the start of the recovery period. Therefore, an additional repeated measure was performed that isolated down to two-time intervals: the last two minutes of the interaction and the first three minutes of the recovery period, with the first baseline measurement used as a covariate. This revealed that there was not a significant difference between the groups on initial HR decrease. Thus, it appears that average HR did not significantly vary between conditions during the recovery period ($F(1.57, 33.03) = 1.94, p = .13$). But there was a significant decline in HR following that interaction, regardless of condition ($F(1.57, 33.03) = 1.94, p = .13, \text{partial } \eta^2 = .22, \text{observed power} = .65$). Thus, there was not a difference between

conditions with respect to change in HR following the interaction, but there was a significant initial decline in HR immediately after the interaction (see Table 10; Figure 3).

Table 10. Listeners' HR during recovery

	Interaction 4 HR (7-9 min.)	Recovery 1 HR (1-3 min.)	Recovery 2 HR (3-5 min.)	Recovery 3 HR (5-7min.)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Low-CPT (<i>n</i> = 13)	81.12(8.42)	74.84(7.82)	76.16(8.15)	77.24(7.66)
High-CPT (<i>n</i> = 11)	78.78(10.39)	72.54(10.96)	73.57(9.58)	74.40(9.98)
Overall (<i>n</i> = 24)	80.05(9.24)	73.79(9.24)	74.97(8.73)	75.94(8.72)

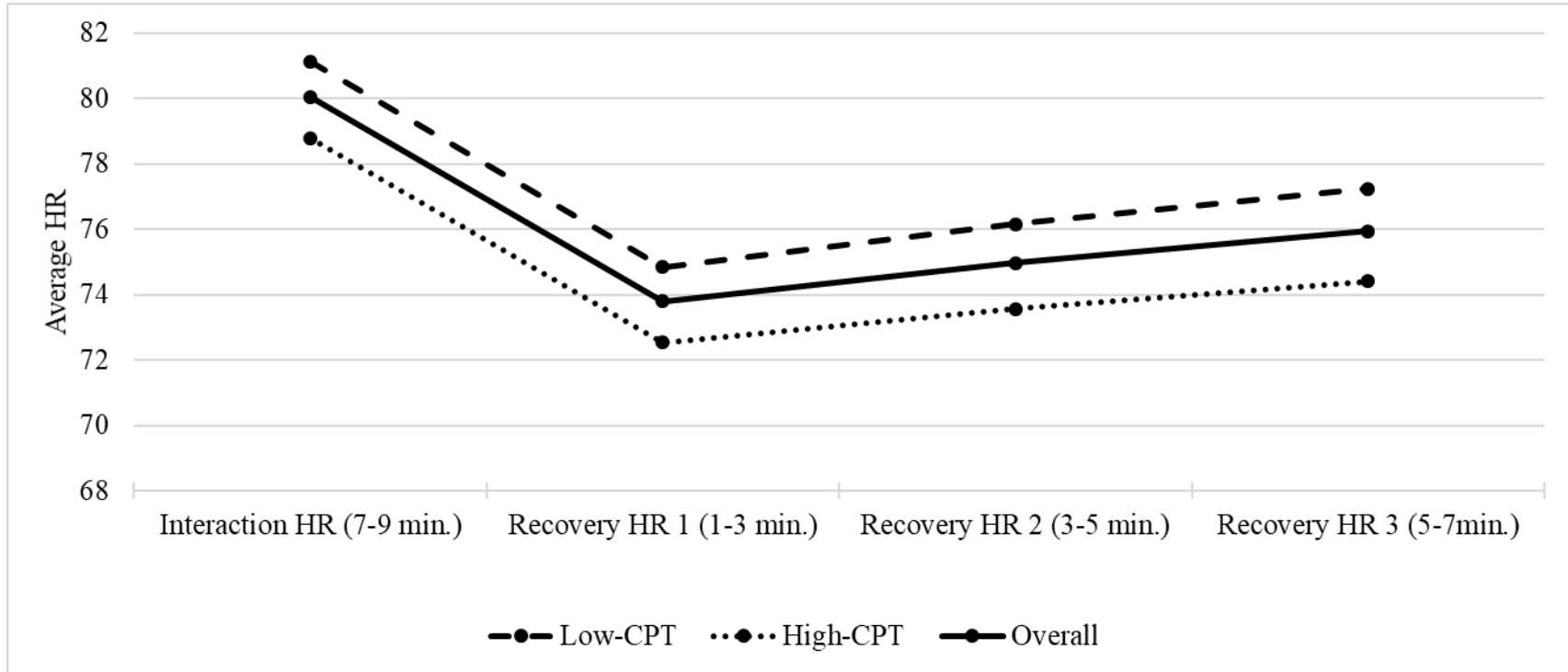


Figure 3. Average HR from interaction to recovery. Figure represents listeners' average HR from the end of the interaction through the recovery period.

Chapter 4

Discussion

The purpose of the present study was to observe how varying degrees of CPT enacted during an interaction can influence interactants' health. Koenig Kellas and colleagues (2013) argue that CPT may be more important than (cognitive) perspective-taking. They reason that CPT is a vital function for relationship-building and maintenance. Although previous research has established a CPT connection to social and psychological health, there is a lack of evidence related to physical health. Hence, the present study presents evidence for the intersection of CPT and health.

Cardiovascular stress response was used as a biological indicator of physical health. Measuring an individual's cardiovascular response before, during, and after the interaction offered a window into a person's autonomic nervous system function. Findings showed that a CPT provider had a significant increase in their sympathetic response at the start of the interaction and a significant decrease shortly after the conclusion of the interaction. Also, CPT providers instructed to perform high-CPT behaviors showed a significant parasympathetic response, whereas those in the low-CPT condition showed a suppressed parasympathetic response. Thus, evidence suggests that CPT can and does have an impact on a person's physical health.

The following discussion will explore these five implications through a review of the present study's findings. I will first present how the findings from the current study support past research in CPT and relational and mental health. I then outline the current study's advancement of CPT theorizing with the integration of physiological evidence.

The Discussion will conclude with theoretical and practical implications for the translational use of CPT, limitations, and future directions for CPT research.

CPT and Relational Health: CPT as Causal for Positive Social Interactions

CPT has emerged as a potential tool to develop better social interactions. Koenig Kellas and colleagues (2017) claimed that “of the four ISM behaviors, CPT has emerged consistently as the strongest predictor of relational outcomes” (p. 4). Findings from the present study support past literature that claims the more CPT present in an interaction, the more favorably both the teller and listener evaluate the interaction. This finding was supported in the current study in two ways: (1) through the positive relationship between perceptions of CPT and reports of satisfaction with the interaction and (2) through the significantly higher level of satisfaction in the high-CPT condition compared to the low-CPT condition. The present study used two indicators of relational health for the teller and only one of those two indicators for the listener.⁷ In evaluating CPT, the two main findings reflect two metrics of CPT: retrospective evaluations of the presence of CPT by the individuals in the interaction and the type of CPT manipulation presented to the CPT-provider and blind to the teller. Given that these were initial interactions, change in relational evaluations was not measured, rather it was measured only post-interaction.

The current evidence underscores the impact of CPT as a behavior that is intended to communicate to an interactional partner that s/he is understood (Koenig Kellas et al., 2010). In fact, Koenig Kellas et al. (2017) state that “CPT communicates an international orientation toward the other” (p. 14). The favorable evaluations of the interaction in the current study are in line with research that links feelings of being understood with a

⁷ The single item measure of satisfaction with the interaction.

greater level of satisfaction for both individuals in the interaction (Allen & Thompson, 1984). Furthermore, research indicates that empathetic listening is also linked to improved interpersonal evaluations (Jones, 2004). While there is a rich history showing a relationship between prosocial behaviors and relationship health, there is limited evidence for a causal relationship.

The evidence from the CPT intervention advances CPT theorizing by showing that CPT as a tool to improve initial relationship development. Stated differently, the experimental design of the study builds on previous CPT research by offering a framework to suggest a causal relationship between CPT and relational evaluations. Causal evidence is a valuable piece of evidence for scholars seeking to integrate CPT into interventions to improve relational outcomes. Initial evidence for a causal relationship between CPT and relational health was found in a writing intervention study that had participants reflect on a conflict from either their perspective or from the other person's perspective (Koenig Kellas et al., 2015). They found that participants that wrote from the other person's perspective over time had an increase in relational closeness. The findings of the writing intervention are valuable, but limited in two ways: only reflect the CPT-provider relational evaluations and lacked the essential transactional element embedded in CPT theorizing. Therefore, the present dissertation addresses both of those shortcomings. First, by revealing that an increase in CPT will lead to more favorable evaluations of the interaction for both the CPT-provider and the receiver, and this was a result of the interpersonal interaction. Taken together, the present findings provide support for CPT to function as a communicative tool to improve relational health and the relational impact of CPT is dyadic. Thus, the present findings indicate that an increase in

CPT is not merely associated with positive social interactions; CPT is a potential causal factor for positive interactions.

CPT and Mental Health: Effects of CPT on Perceptions of Mental Health

In addition to reinforcing evidence that shows the importance of CPT to relational health outcomes, the present study also provides evidence that relates CPT and mental health. Previous research has found an inverse relationship between CPT and mental health symptoms. Specifically, Koenig Kellas and colleagues (2010) found that husbands that had wives that displayed a high level of CPT reported less perceived stress in the past month. The present study operationalized psychological health through a measure of stress symptoms. With that said, the present evidence found a similar relationship as previous research: (1) there was a negative relationship between perceptions of CPT and perceived stress symptoms in the past week and (2) there was not a significant difference between the two conditions on reports of perceived stress.

First, there was a significant negative relationship between tellers' perception of CPT in the interaction and their reports of stress symptoms. In other words, tellers reported experiencing fewer stress symptoms in the past week, after they engaged in an interaction they perceived as having a higher level of CPT. This finding is loosely in line with previous studies that found that an increase presence of CPT is related to decreased stress symptoms and greater mental health symptoms (Koenig Kellas et al., 2010). In their study, a married couple was filmed interacting, and raters reviewed the film of the interaction later. The previous study did not evaluate the participant's perception of CPT in the interaction. Moreover, when interactants' perceptions of CPT in an interaction were evaluated, the study did not account for mental health (Koenig Kellas, Willer, &

Trees, 2013). The present investigation attempted to bridge that gap in the research. Thus, the present study accounted for perceptions of CPT by a participant and found a similar inverse relationship between CPT and mental health. A high level of CPT in an interaction might lead to more sense-making and relational closeness which in turn relates to improved mental health, it might also be that CPT has an acute impact on evaluations of personal health. The previous finding requires further unpacking and contextualization.

The significant inverse relationship between a teller's perception of CPT in an interaction that had just occurred and his/her perception of experiencing stress symptoms in the past week leads to a need to unpack. When observing the inverse relationship between perceptions of CPT in an interaction and reports of mental health symptoms in the past week, it is possible that CPT can influence how a person reflects on his/her health. In other words, a person immediately reflecting on an interaction that just occurred, in which s/he perceives that his/her perspective was effectively communicated back to him/her, might lead a person to perceive their health with metaphorical "rose-colored glasses." A similar idea was presented by Taylor and Brown (1988) in their argument for "positive self-illusionment" stating: "happy people are more likely to have positive conceptions of themselves, a belief in their ability to control what goes on around them, and optimism about the future" (p. 200). The present operationalization of mental health consists of items that directly tap into perceptions of being able to control events in life and belief that things will work out. Thus, CPT might help receivers increase their evaluation of themselves and through the sense-making process give themselves a greater sense of control. It might be that CPT is a mechanism that can help

alter the frame in which we perceive our mental health. This idea remains relatively speculative, and further research is required to develop evidence for the argument.

Second, there was not a significant difference in reports of mental health symptoms when comparing tellers in the high-CPT versus the low-CPT conditions. The non-significant finding is intriguing; it suggests that perceptions of mental health are dependent on the variation of perception of CPT present, not just the bi-modal presence of CPT (e.g. high vs. low CPT). In other words, CPT may operate at a more nuanced level of mental health and that the broad categorization of CPT within a high-/low- group fails to capture the subtle variations CPT has on a teller's perceptions of his/her mental health. The current evidence points to the importance of an intervention to account for perceptions of CPT in an interaction, as the simple comparison of treatment groups might not be enough to observe relationships with mental health.

To further unpack the two current findings, the various parameters of the study should be understood: reports of the teller only, the timing of when stress symptoms occurred, and when in the study the teller reported on his/her perceived stress. First, the present investigation was limited to only perceptions of stress symptoms of the CPT-recipient. Second, previous research evaluated the frequency of stress symptoms during the past month (Koenig Kellas et al., 2010), whereas the current study asked about the past week. Third, the PSS was administered after the CPT-intervention, with no baseline measurement. In other words, mental health was a measurement of what occurred in the week before the CPT intervention but was administered after the intervention. Taken together, the current parameters are potentially problematic and make it difficult to untangle a potential influence of CPT from variations in the participants' perceived

stress. Nevertheless, there is still significant findings (i.e. the inverse relationship between perceived CPT and PSS), and thus, there is a need for a potential explanation. A simple explanation is that the finding is arbitrary. Those individuals who reported fewer stress symptoms after the interaction would have reported similar levels regardless of the level of CPT they perceived. Although this is a potentially valid explanation, the finding that there is no significant difference between the two randomly assigned conditions in reports of stress symptoms could suggest that there is an equal distribution of pre-intervention perceived stress symptoms. This assumption of distribution is further bolstered using randomization of participants to be in either a high- or low-CPT condition and that the teller (and researcher) were blind to the assigned condition. Thus, if there was an equal distribution of tellers perceived stress across the two conditions, the prior two explanations tentatively persist but demand additional research.

CPT and Physical Health: Evidence of Effect on (Para)Sympathetic Nervous System

The primary contribution of the present study was expanded CPT research into an additional layer of individual health – physical health. The present study took a novel approach to an investigation of CPT by measuring a listener’s cardiovascular response, which is a non-invasive approach to measuring two components of the nervous system linked to stress: sympathetic and parasympathetic nervous system (Brodal, 2004). The sympathetic nervous system response is indicated by average heart-rate (HR), and an increase in HR is related to the activation of a person’s stress response system. In other words, an uptick in HR indicates that the body has activated its “fight-or-flight” response (Cannon, 1932; Sapolsky, 2004). The parasympathetic nervous system will be discussed within the context of the present study in the following section, but first, the evidence

related to the sympathetic nervous system will be reviewed. There were two specific findings to unpack: (1) there was a significant sympathetic response at the start of the interaction with listeners regardless of the condition and (2) there was a significant initial decrease in the sympathetic nervous system after the interaction.

The effect of CPT on the Sympathetic Nervous System. The first cardiovascular finding revealed that regardless of condition, listeners experienced a significant sympathetic response to the start of the interaction and a significant increase in average HR between the beginning and the end of the interaction. In other words, there was not a significant difference between the conditions on the sympathetic response. This finding was counter to the assumption that CPT behaviors place a cognitive load on a person, which would lead to a greater level of stress in the high-CPT condition (Koenig Kellas et al., 2015). The present finding does not necessarily challenge that claim, but may explain it in more nuanced ways. The evidence related to the increase in HR at the start of the interaction⁸ can be explained three ways, with each explanation examining a different stressor related to the interaction. The stressor in the interaction could be from the manipulation, the content of the conversation, or that it was an initial interaction.

The first explanation is that the active engagement in any level of CPT is stressful. The listeners may have found it stressful to actively focus on the performance of a set of communicative behaviors (i.e. high or low-CPT). Therefore, an intervention that asks a person to actively shift away from or enhance their “trait” CPT is stressful. The term “trait CPT” is a reference to a person’s baseline of expressing CPT in daily life.

⁸ There was only a significant change in the transition from baseline to the start of the interaction. After the start of the interaction there was a plateau in HR for the rest of the interaction and this plateau did not vary based on condition.

It is possible that there is a level of cognitive demand placed on a person to actively focus on performing CPT behaviors (Koenig Kellas et al., 2015), regardless of how well the CPT is executed. More precisely, the stress from engaging in the interaction is rooted in receiving instructions on how to behave during the interaction, and that initiated a cognitive load within both conditions. Future analysis should observe if there is a potential interaction between receiving instructions in the form of a communicative intervention and the activation of a stress response. Thus, the present evidence does not stand in opposition to the claim that CPT is stressful (Koenig Kellas et al., 2015), rather it broadens the claim to suggest that the active engagement of CPT is stressful.

Second, the act of listening to another person shares a stressful experience is stressful. In this way, the stressor is rooted in the act of simply engaging with a person sharing a story about a stressful experience (Lewis & Manusov, 2009). One potential reason for this is that by participating in a conversation about stress, a listener is also susceptible to co-experience that stressor. Cognitive perspective-taking could be still occurring, but the listener is not engaged in CPT (i.e., not communicating to the teller that s/he is perspective-taking). Perspective-taking, hidden or not, may lead a listener to experience similar emotions, which activates a physiological stress response (Shortt & Pennebaker, 1992). Furthermore, research should vary the type of content a teller is sharing (i.e. happy, mundane, or a co-experience) to investigate the emotional contagion (Hatfield, Cacioppo, & Rapson, 1993) or co-rumination (Smith & Rose, 2011; White & Shih, 2012) which might be experienced through enacting CPT. Additionally, future research should seek to untangle if there is stress related to a person actively suppressing communication that relays to an interactional partner that s/he is cognitively perspective-

taking. The stressor might be rooted in the cognitive demands required when a person is performing emotional suppression (e.g. Gross & Levenson, 1993). Thus, the second explanation argues that engaging in an interaction about a stressful experience is a potential stressor for a listener, not just the person that experienced the stressful event.

The final potential stressor is rooted in the relationship type in the present study. The significant increase in stress might be related to the fact that the interaction occurred between people that were primarily meeting each other for the first time. During an initial interaction, a heightened level of ambiguity exists when negotiating an interaction with a new person and it is that uncertainty is the stressor (Berger & Calabrese, 1975). Furthermore, research has suggested that one potential risk of being a support provider is a concern over negative evaluations (Goldsmith, 1994). Therefore, by assigning a person to be a listener in an initial interaction, regardless of the condition the awareness of being evaluated by the teller might be especially salient to the teller, which resulted in an increase in stress. Future research should tease out if there are differences in relationship types when comparing how different levels of CPT might cause a variation in sympathetic responses. In short, the increase in stress at the start of an initial interaction might function as a stressor in the current investigation.

The various findings related to the increase in stress at the initial interaction is all to say that, several different potential sources could be a stressor and that it might not necessarily just be one source. Rather, it would not be surprising if all the identified stressors compound each other and that led to the significant initial increase in stress for the listener. Furthermore, future research would be strengthened by using less “noisy” data than cardiovascular measurements to differentiate if there is a difference in the stress

experience when enacting varying levels of CPT in an interaction. Therefore, CPT research should seek to utilize a physio-experimental design to uncover to what degree is CPT responsible for an increase in stress and if different levels of CPT have unique stress responses.

The second finding related to physical health was the two significant differences between the two conditions on sympathetic and parasympathetic nervous system response. The findings bolster the claim the interaction between participants was stressful because there was a significant decrease in HR. After the interaction had concluded, during the recovery period, the listeners experienced a significant initial decline in sympathetic response immediately following the end of the interaction. The initial decline did not significantly vary based on the listener's assigned condition. Like the first finding of a significant initial increase in stress at the start of the interaction, the conclusion of the interaction is marked with a significant decrease in stress. This finding is to be expected because the stressor related to the interaction is removed and the sympathetic response is no longer needed. Speaking metaphorically, the sympathetic response is a gas pedal, and the measurement of HR is observing how much acceleration is being applied to keep up with the current situation, but when there is no need to keep up, the body stops depressing the gas pedal. The sympathetic system could be understood as a gas pedal; the parasympathetic system could grossly be described as the brake pedal. In short, whatever stressor(s) that were prompting the sympathetic response tied to the interaction was no longer a threat and therefore does not require a response by the body.

The differential effect of CPT on the Parasympathetic Nervous System. The second line of findings related to physical health is through the parasympathetic nervous

system. Specifically, there was a significant difference between the two conditions on parasympathetic response during the recovery period. The parasympathetic nervous system is the regulatory response system that is linked to a person's ability to adapt to stressors (Brodal, 2004). An indicator of the parasympathetic nervous system is observed through HRV. HRV is the overall variance between each heartbeat (Sayers, 1973). HRV is positively related to emotional regulation (Fredrickson et al., 2008), suppressed HRV is found to be an indicator for various physical health risks (Thayer et al., 2012), and a prolonged period of suppressed HRV is related to a greater allostatic load (McEwen, 1998). Therefore, in the present study participants in the high-CPT condition displayed a significant increase in HRV, whereas the participants in the low-CPT condition displayed a significant decrease in HRV during the recovery period. This finding suggests that performing a high level of CPT during a stressful interaction will promote positive health outcomes, but performing a low level of CPT can lead to potential health risks. Simply stated, CPT can function as a tool to either improve a person's health or be a health risk factor, depending on the level of CPT a listener displays. The following will unpack the findings of each condition respectively.

First, displaying a high level of CPT during a stressful interaction lead to an increase in HRV during a recovery period after the interaction. Elevated HRV speaks to the capacity of the parasympathetic system to adapt and change bodily functions to match situational demands (Friedman & Thayer, 1998). Simply stated, a greater level of HRV suggests greater physiological flexibility to address various demands. Physiological flexibility indicates that a person is in a better position to recover from stress. Which, in turn, means that a person can potentially thwart off experiencing chronic stress, which is

the way in which stress can negatively impact a person's health (i.e. allostatic load; McEwen, 1998). Specifically, blunted HRV is found to relate to many different negative health risks (Thayer et al., 2012), therefore elevated HRV should relate to reduced health risks. Thus, the current finding suggests that an individual who enacted a high level of CPT during an interaction displays more HRV shortly after the interaction, which indicates this individual is adjusting to the demands of the interaction.

The pronounced parasympathetic response is an indicator that high-CPT behaviors have a positive impact on a person's physical health. Research has found that a greater level of HRV is related to individual reports of mental health (Fredrickson et al., 2008) and reduced anxiety (Thayer, Friedman, & Borkovec, 1996). The current finding points to initial evidence to a physiological mechanism related to CPT that may help explain previous research that found a positive relationship between CPT and mental health. Therefore, I argue that a high level of CPT can lead to an increase parasympathetic response that helps the body adjust following a stressor, and that process might be why we see the positive relationship between CPT and mental health. CPT might function as a compounding factor in interpersonal relationships, in that, a person who enacts a high level of CPT in daily interactions continue to build his/her stress protection resource (i.e. stress-buffering; Cohen & Wills, 1985). This compounding factor of CPT at the biological level is what may lead to the perceivable difference in health reported in previous research (e.g. Koenig Kellas et al., 2010; Koenig Kellas et al., 2015a). The evidence reveals that there is a significant parasympathetic response in the high-CPT condition, a different picture is painted when observing the low-CPT condition.

Second, displaying a low level of CPT during a stressful interaction lead to a decrease in HRV during a recovery period after the interaction. This trend suggests that those listeners have trouble adjusting and adapting to the stresses of the interaction (Brodal, 2004; Friedman & Thayer, 1998). The finding can be understood through research that finds that blunted HRV is related to a state of worry (Hofmann et al., 2005) and rumination (Ottaviani, Shapiro, Davydov, Goldstein, & Mills, 2009). Therefore, the decrease in HRV might be a result of feeling and reflections about enacting behaviors that are self-focused and anti-social. This connection appears logical because the very nature of low CPT behaviors require a CPT-provider to focus inward and not of the other person, to avoid acknowledging a recipient's lived experience (Koenig Kellas et al., 2017). The lack of being a supportive person during a stressful interaction appears to come with a physiological cost.

Within the context of the present study, the act of performing low-CPT might have felt like an anti-social behavior to the listener, which may have elicited negative emotions and thus decreased HRV. The presence of low HRV is an indicator of a risk factor for physical health. To be clear, the health risk factor for performing a low level of CPT is only a marginal risk (i.e. does not rise to the same level of risk as a behavior such as smoking). The findings suggest that a listener enacting a low level of CPT is not merely missing out on a potential positive effect. Instead, s/he is showing a trend towards experiencing chronic stress and subsequently at an increased risk for physical health problems. HRV is an accepted indicator of stress and health, and that blunted HRV is related to many different health risk factors (Thayer et al., 2012). For example, in an older population, individuals that were found to have low HRV also had a greater

frequency of coronary heart disease (Dekker et al., 2000). While the present study consisted of young adults, the finding that low-CPT was related to blunted HRV is important. In short, communicative behaviors such as enacting a low level of CPT in an interaction is a potential health risk factor.

Taking the cardiovascular evidence together, an interesting trend with CPT emerges. First, performing a high level of CPT during an interaction might not elicit a more pronounced sympathetic response, the general act of engaging with a person sharing a story about a stressful experience is enough to elicit a pronounced increase in stress. It remains unclear if it is caused by having to follow specific instructions and if the increase in stress is related to a shift away from a trait-like level of CPT. Second, during a period after the interaction, individuals in the high-CPT conditioned displayed an increase in parasympathetic response, whereas persons in the low-CPT condition displayed a blunted parasympathetic response. Taken together, these findings point to an inherent stress associated with listening to someone else's stressful experience, but the health-related risks associated with such an interaction is contingent upon how an individual engages in that interaction.

Theoretical Implications

The current study has advanced CPT theorizing in several ways. The CPT framework offers insight into how individuals communicatively make sense of lived experiences. The primary interest of the study was the intersection of CPT and health, with a goal of initial development of a CPT intervention. The following will present the three ways the current dissertation advances CPT theorizing: (1) offer evidence for a link

between CPT and physical health, (2) exposing the biological benefits and risks of enacting varying levels of CPT, (3) the use of a new relational structure.

To begin, the current dissertation is the first known study to seek a link between CPT and physical health. The need for such an investigation can be found in the words of Afifi and Floyd (2015) who state: “it is logically impossible to separate communication from the biology of those who produce it” (p.1), and in the same article they urged “current and upcoming generations of communication scholars to consider the biological and physiological implications of their own communication interests” (p.5). Typically, CPT is treated as a relational tool that uses self-reported outcome measure. While self-report measures have been useful, they fail to capture the biology and physiological processes of the humans engaged with CPT. Therefore, the primary theoretical contribution of the present study is the evidence that CPT not only affects a person’s mental and social health, but it can also impact physical health as well. Theoretically speaking, the present study advances CPT to a more multidimensional understanding of health implications. Therefore, CPT theorists should seek not only to consider mental and social health but also look towards biological indicators of physical health.

Second, the findings move the CSM theory forward by not only pointing to the benefits of enacting a high level of CPT, but it also highlights the potential risks associated with a person that displays a low level of CPT. Previous literature has often pointed to positive outcomes related to performing CPT, but the present investigation helps underscore that CPT has the power to cause both positive or negative health outcomes. In other words, while it was not the goal to find a risk factor related to CPT, the present trend in HRV after an interaction with a low level of CPT indicates one

potential way to consider the nefarious elements of CPT. Koenig Kellas and colleagues (2015) found that over time, listener's tolerance for listening to another person's problem might reduce, which resulted in negative evaluations of CPT. The current evidence suggests that there is a sense of fatigue experienced by listeners over time that is displaying a low level of CPT. Moreover, that is compounded as CPT reduces over time, ultimately leading to a listener not recovering from the demands of listening to another person's problems. Therefore, the present evidence provides a potential biological explanation for the decline in evaluations of a CPT-providers, lending further evidence to the risks of enacting a low level of CPT.

Third, the present evidence advances CPT research to a new relational structure - non-established relationships, with a predominant number of dyads having zero-history (e.g. strangers). Previous research has focused on the role of CPT in established relationships such as married couples (Koenig Kellas et al., 2010; Koenig Kellas et al., 2013), romantic partners (Koenig Kellas et al., 2015b), and friends (Koenig Kellas et al., 2015a). The present study contributes an additional relationship structure to observe CPT within. Findings of the present study suggest that CPT is a potentially important factor in relationship initiation and building. Whereas previous research on relationships suggests CPT as having a role in relational maintenance and sense-making, CPT is relevant from the very start of a relationship. In other words, CPT can impact a relationship at all stages. This is important because researchers should understand the communicative tools that people use not only to maintain relationships but how individuals develop relationships. Therefore, the present evidence suggests that CPT should seek to understand the influence of various stages of relationships with health outcomes.

Practical Implications: CPT as a Communicative Intervention

Recently, Koenig Kellas and Kranstuber Horstman (2015) called for researchers to embrace CSM devices, such as CPT, as a source of interventions to improve individual and social health. Such an intervention requires both theoretical and evidence-based benefits to be translated into practice (Wittenberg-Lyles, Goldsmith, Sanchez-Reilly, & Ragan, 2008). Researchers have been successfully building a body of evidence to refine and strengthen the theoretical framework of CPT. Additionally, there is a body of literature that presents evidence for a link between CPT and health. However, CPT research is lacking the crucial component of showing that there is a beneficial outcome that is caused by an increased level of CPT. To establish evidence that identifies CPT as a communicative behavior that is driving improved health outcomes, the desired presence of CPT was manipulated before an interaction. Such a design satisfies the criteria of the temporal order required for establishing causality. Thus, the current study presents promising evidence for the effectiveness of CPT to cause meaningful changes in individual (e.g. psychological and physical) and social health.

The first practical implication is rooted in the design of the intervention material. The present investigation offers initial evidence to support the ability and effectiveness to design a communicative intervention using CPT. Most previous research has employed observational (Koenig Kellas et al., 2017; Koenig Kellas et al., 2010; Trees & Koenig Kellas, 2009) or self-report posthoc evaluations of CPT (Koenig Kellas et al., 2015a; Koenig Kellas, Willer, & Trees, 2013). The only other study to date to manipulate CPT involved a writing intervention that had participants reflect on a conflict and write about the event from their own or the other person's perspective (Koenig Kellas et al., 2015b).

Participants that wrote from the other person's perspective, over time, had an increase relational satisfaction. Interestingly, they did not find a significant difference between writing about an ongoing conflict between a self- or other-oriented perspective on mental health. Therefore, the design of Koenig Kellas et al.'s study appears to show that an expressive writing intervention can improve health⁹, but falls short in connecting CPT with health outcomes. Building from Koenig Kellas et al.'s work, the current study removed the potential confounding factor of expressive writing and integrated the inherent interactional component of CPT. Specifically, the intervention involved presenting a simple definition of what CPT is, followed by a description of behaviors that reflect two specific dimensions of CPT: (in)attentiveness and (dis)confirmation¹⁰. By integrating an interpersonal interaction into an investigation of a CPT intervention, the impact of enacted CPT behaviors (e.g. head nodding and verbal (in)attentiveness to the other person's perspective) can be observed. Given that there was a significant difference in the participant's reports of CPT behaviors between the conditions, it appears the intervention caused a substantial shift in the presence of CPT. Therefore, at a general level, the findings promote CPT as a behavioral skill (Koenig Kellas et al., 2013), that can be effectively influenced through a standardized instrument. Such an intervention instrument could be economically deployed at a large scale to promote high CPT behaviors (Schilling, 1997). Thus, the present study demonstrates that CPT is a behavioral skill that can be trained through a standardized intervention.

⁹ Expressive writing paradigm has a rich body of literature connecting expressive writing interventions with improved health outcomes (e.g. Frataroli, 2006).

¹⁰ The definition of CPT and descriptions of the sub-dimensions of CPT were adapted from Koenig Kellas et al. (2017) development of an observational rating scheme study.

Furthermore, the present evidence advances CPT theorizing by demonstrating that the presence of CPT can be manipulated to a level that is noticeable for both interactants. The effectiveness of this intervention was demonstrated in a difference between participants in the high-CPT and the low-CPT conditions in their perceptions of three CPT measures: (dis)confirmation, (in)attentiveness, and general CPT. First, the participants rated perceiving a greater amount of confirmation and attentiveness of the teller's perspective when the listener was prompted to display a high level of CPT. The measure of (dis)confirmation and (in)attentiveness consisted of a single item for each dimension. The difference in perceptions of CPT was further reinforced through a unidimensional CPT scale (Koenig Kellas et al., 2012). Through this scale, tellers reported that they perceived the listener enacting significantly greater levels of CPT and listeners indicated that they enacted a greater level of CPT when prompted to do so. Finally, the significant positive correlation between the teller's and listener's perception of CPT in the interaction suggests that the presence of CPT was perceived relatively similarly for both individuals in the interaction. Taken together, current evidence identifies that a simple communicative intervention can influence noticeable influence the presence of CPT.

The present evidence points to a simple intervention that can be introduced to improve potentially stressful interactions. Given that the sample consisted of primarily college age students, it seems logical to consider how such an intervention might improve interactions for college students. For example, when a student initially moves into the dorms and meets many new people, a CPT intervention before all those initial interactions occur might have positive impacts on this stressful transition in a person's

life. Specifically, a CPT intervention could be presented to a student right before s/he moved into the dorm, and that may help facilitate healthy initial interactions with potential new roommates. In short, academic institutions might consider integrating material aimed at improving college students' communication, through teaching students what are high-CPT behaviors and encouraging them to enact such behaviors.

Another group that could benefit from a CPT intervention are individuals that are at high risk for chronic stress. For example, caregivers of a family member with a chronic illness have a greater risk of experiencing fatigue (Jensen & Given, 1991) or burnout (Lindgren, 1990). A CPT intervention might help practitioners reduce the health risks associated with being a caregiver to an ill family member. To be clear, a CPT intervention would not completely resolve the stress and emotional challenges that are experienced during that time; rather it might be a complimentary tool to integrate within the family. The evidence that expressing a high level of CPT is related to increased HRV following a stressful interaction suggests that CPT might not make the interaction any easier for a person; rather, by employing high CPT behaviors in an inherently stressful interaction, the intervention might facilitate or accelerate that person's recovery following the interaction. To further build on this line of reasoning, a CPT intervention that emphasizes high CPT behavior might help suppress the experience of caretaker fatigue (Jensen & Given, 1991). The increase in a parasympathetic response following a stressful interaction suggests the individual is effectively "turning off" his/her stress response system. Which ultimately shifts the stressful interaction towards being an acute stressor, instead of contributing to chronic stress. In summary, CPT might be a promising communicative intervention for individuals in interactions that are inherently stressful.

The most practical integration of the findings of the present dissertation is to frame CPT as a communicative exercise. Treating CPT as a communicative exercise would be like the encouragement of individuals to engaging in 10-minutes of physical activity (e.g. going for a run or lifting weights). To be clear, the current evidence is preliminary and cannot argue for an equivalency between CPT and physical activity, but the analogy appears appropriate. The logic is that they are both stressful activities (i.e. cause an elevated HR) that can have positive health outcomes (i.e. improved parasympathetic response). Interestingly, as with physical exercise, the poor performance of CPT also may result in negative health outcomes. The present evidence suggests that by actively engaging in a high-level of CPT a person is strengthening his/her stress response system. Therefore, relational dyads could engage in a 10-minute interaction that s/he is actively enacting a high level of CPT. Future research is needed to identify the influence of frequency and duration of this communicative exercise. In short, by framing communication as an exercise, the research is more readily translatable to the general population.

Limitations and Future Directions

The present investigation is a study that aimed to lay the first step towards the investigation of potential biological underpinnings of CPT. The use of cardiovascular indicators is a valuable resource to start such a program of research, but there are better instruments for measuring cardiovascular response and much stronger biological indicators beyond just measuring HR and HRV. Given the limitations and tendency for cardiovascular measurements to generate a lot of “noise” in the data, future research should seek to embrace additional biological indicators such as hormones. The use of

such evidence would further bolster the claims that CPT not only impacts a person's social and psychological health, it also plays a role in a person's physical health.

An additional limitation of the study is rooted in the sample size and type.

Overall, the sample was relatively small, which suggests that the findings of the present investigation need to be tested on a greater sample size. Therefore, the implications of the none significant findings should be tempered, as there might not have been enough power to reveal a significant effect. Thus, increase in sample size can lend more power to the statistical analysis, giving future researchers more confidence in the generalizability of the physiological evidence. Second, the sample was mostly young and healthy. The sample type is a limitation because one of the goals for this form of CPT research is to improve health, but if the sample is healthy, it remains unclear if CPT would be effective in a less healthy sample. It may be the case that in some individuals the stress involved in engaging in a stressful interaction might be a cause of more risks than benefits to someone with cardiac diseases. Future research should seek to systematically and thoughtfully expand the sample to include older and less healthy individuals.

A third limitation of the present findings is related to the significant difference in the CPT-providers' physiological recovery following the interaction. Specifically, this claim was anchored on only one data point (e.g. HRV). Thus, any claims related to physiological recovery following the performance of CPT will require further data points to ensure that there is a consistent difference in a persons' physical stress recovery. Therefore, future research should seek to identify if there is a difference in other physiological stress recovery system related to variation in the performance of CPT.

A final limitation of the study was the type of dyads represented. Specifically, the use of unestablished relationships. The strength of this design is that the presence of CPT in the interaction could be manipulated, without the teller noticing that something is off about the interactional pattern because there is not an established baseline of behavior present between the two individuals. The limitation of this design is that it is not likely a representation of a typical initial interaction between two people. Meaning that when a person is starting to get to know someone else, the conversation is rarely predicated on assigned roles and a person sharing a stressful personal experience. Thus, future research should seek to investigate if the manipulation of CPT is effective in established relationships, where there is a baseline of “typical” behavior.

Conclusion

The current dissertation addresses my argument that research and theorizing on the intersection of CPT and health should be predicated on three dimensions of health: relational, mental, and physical. The evidence of a CPT intervention suggests that the presence of a high level of CPT in an initial interaction will lead to more favorable evaluations of the interaction. There is tentative evidence to suggest that it is important to account for a person’s perception of CPT when considering his/her mental health. Finally, the cardiovascular evidence suggests that being a CPT-provider is a stressful role regardless of the level of CPT being performed. However, there is a significant difference between the performance of a high versus low level of CPT. Specifically, providing a high level of CPT resulted in great physiological adjustment and adaptability following a stressful interaction; whereas providing a low level of CPT lead to an opposite physiological trend. Thus, CPT is a prosocial communicative stressor that if performed at

a high level will result in positive health outcomes, but if performed at a low level will potentially lead to health risks. Simply stated, there are positive health outcomes for individuals that take the time to communicate to another person that s/he is “walking in the other person’s shoes.” Overall, if CPT research is to be translated into practice, scholars should embrace the impact of CPT on three dimensions of health: relational, mental, and physical.

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Appendices

Appendix A: Listener Intervention for High CPT Condition

Instructions:

During your interaction with the other person you will be listening to him/her share a personal story. During the interaction, we request that **you actively try to take the perspective of the other person**. Below are behaviors that are found to relate to perspective-taking in an interaction. Do your best to **enact and display behaviors that communicate that you are perspective-taking**. The goal is for you to modify your normal behavior in an interaction towards the behaviors below, try not to let the other person know you are purposely changing your behavior.

Perspective-taking: the ability to place yourself in another person's shoes.

Communicated perspective-taking behaviors:

- **Attentiveness to Other's Perspective**
 - Asking about his/her perspectives explicitly,
 - Make statements that indicate an understanding that the other person may have seen things differently
 - Acknowledging perspectives the other person has contributed to the conversation,
 - Including the other person's perspectives in your contribution to the conversation.
 - Nonverbal cues such as gestures and eye contact toward the other may accompany these verbal perspective-taking moves.
- **Confirmation of Other's Perspective**
 - Statements affirming the validity of others' experiences (e.g., "that's a good point.")
 - Statements affirming agreement (not necessarily agreement with the point, but with the description of their own experience, e.g., yes, I can see where you would feel that way).
 - Behaviors that show you are really trying to put yourself in the other person's shoes and can see things from that person's perspective.
 - Nonverbal behaviors indicating agreement or disagreement would also contribute to this process (e.g., head nodding or shaking, disbelieving/believing or disapproving/approving facial or vocal expressions).

Appendix B: Listener Intervention for Low CPT Condition

Instructions:

During your interaction with the other person, you will be listening to him/her share a personal story. During the interaction, we request that **you do not actively try to take the perspective of the other person**. Below are behaviors that are found to relate to perspective-taking in an interaction. Do your best to **NOT enact and display behaviors that communicate that you are perspective-taking**. The goal is for you to modify your normal behavior in an interaction towards the behaviors below, try not to let the other person know you are purposely changing your behavior.

Perspective-taking: the ability to place yourself in another person's shoes

Communicated perspective-taking behaviors:

- **Inattentiveness to Other's Perspective**
 - Ignore the other person's ideas/perspective.
 - Acting as though there are two sides to a conflict and that your side is the right side.
 - Failing to ask for the other person's perspective
 - Not integrating the other person's perspective into the conversation.
- **Disconfirmation of Other's Perspective**
 - Statements that show you do not agree with the other person's perspective ("No, that's not what happened!")
 - Disconfirming tone of voice
 - Telling the other person that he or she is wrong or that his or her way of seeing things is not valid.

Appendix C: Teller's Prompt for Story

As the teller you are requested to share a story, with the other person you just met, about a recent stressful experience.

At this time please take a second to reflect on recent events and think of recent stressful experiences. While thinking of an experience, please keep in mind that you will be asked to share this experience with the other person. In deciding what to share, please choose an experience that you are comfortable sharing and discussing.

In the space below, please type out a brief statement of what the stressful experience you have decided to share is about. This can simply be a short sentence or a few words. Please avoid writing out the whole experience, save that for the discussion with the other person.

What is the stressful experience you will share with the other person?

Appendix D: Teller’s Pre-Interaction Survey

TELLER

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When is the last time you consumed caffeine? _____ hours
 When is the last time you consumed alcohol? _____ hours
 When is the last time you consumed nicotine? _____ hours

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PANAS

Instructions: Please report the extent to which you are currently feeling the following:

		<u>Not at all</u>				<u>Extremely</u>
	Interested	1	2	3	4	5
*	Distressed	1	2	3	4	5
	Excited	1	2	3	4	5
*	Upset	1	2	3	4	5
	Strong	1	2	3	4	5
*	Guilty	1	2	3	4	5
	Enthusiastic	1	2	3	4	5
*	Stressed	1	2	3	4	5
*	Scared	1	2	3	4	5
	Proud	1	2	3	4	5
*	Hostile	1	2	3	4	5
*	Alert	1	2	3	4	5
*	Irritable	1	2	3	4	5
	Inspired	1	2	3	4	5
*	Ashamed	1	2	3	4	5
	Determined	1	2	3	4	5
*	Nervous	1	2	3	4	5
	Attentive	1	2	3	4	5
*	Jittery	1	2	3	4	5
	Active	1	2	3	4	5
*	Afraid	1	2	3	4	5

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Prompt:

As the teller you are requested to share a story about a recent stressful experience with the other person you just met. At this time please take a second to reflect on recent events and think of recent stressful experiences. While thinking of an experience, please keep in mind that you will be asked to share this experience with the other person. In deciding what to share, please choose an experience that you are comfortable sharing and discussing.

In the space below please type out a brief statement of what the stressful experience you share is about. This can simply be a short sentence or a few words. Please avoid writing out the whole experience, save that for the discussion with the other person.

What is the stressful experience you will share with the other person?

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Stressful (Difficult) Life Experience Survey (LEQ)

In the spaces below, please list a stressful experience that has occurred recently in your life and then answer each of the questions that follow the spaces. Keep in mind that you will be telling this to the other person.

Stress Life Experience: _____ {pipe text from the “stressful experience box on previous page”} _____

How upsetting is this experience for you currently?

Not 1 2 3 4 5 6 7 8 9 10 Extremely
upsetting upsetting

How recent was this experience? ____ years ____ months ago

How significant is this experience in your life?

Not 1 2 3 4 5 6 7 8 9 10 Extremely
significant significant

How likely are you to talk with others about this experience?

None 1 2 3 4 5 6 7 8 9 10 A lot

How much time have you spent talking out loud to others about this experience?

None 1 2 3 4 5 6 7 8 9 10 A lot

How much time have you spent talking out loud to others about this experience?

None 1 2 3 4 5 6 7 8 9 10 A lot

Is this experience resolvable (meaning do you think the experience can be easily resolved by you, or is it out of your control)?

Not 1 2 3 4 5 6 7 8 9 10 Easily
easily resolvable resolvable

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State Trait Anxiety Inventory

Read each statement and select the appropriate response to indicate how you feel right now, that is, at this very moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	1	2	3	4
	Not at all	A little	Somewhat	Very Much So
1. I feel calm			1 2	3 4
2. I feel secure			1 2	3 4
3. I feel tense			1 2	3 4
4. I feel strained			1 2	3 4
5. I feel at ease			1 2	3 4
6. I feel upset			1 2	3 4
7. I am presently worrying over possible misfortunes			1 2	3 4
8. I feel satisfied			1 2	3 4
9. I feel frightened			1 2	3 4
10. I feel uncomfortable			1 2	3 4
11. I feel self confident			1 2	3 4
12. I feel nervous			1 2	3 4
13. I feel jittery			1 2	3 4
14. I feel indecisive			1 2	3 4
15. I am relaxed			1 2	3 4
16. I feel content			1 2	3 4
17. I am worried			1 2	3 4
18. I feel confused			1 2	3 4
19. I feel steady			1 2	3 4
20. I feel pleasant			1 2	3 4

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Thank you

In the remaining time please simply sit back and quietly relax. Please avoid distractions such as your cell phone.

Appendix E: Teller's Post-Interaction Survey

Self-Report of Other's Global Confirming Perspective

Overall, how much would you say the other person confirmed your perspective? Please place a checkmark next to the statement that best reflects your interaction.

- 5: My perspective was always or almost always acknowledged and confirmed (e.g. "Oh that's a good point;" "Yes, I can see where you would feel that way"; nodding, smiling at another's perspective)
- 4: The other person confirmed my perspectives some of the time and did not engage in any disconfirming behaviors.
- 3: The other person sometimes confirmed and sometimes disconfirmed (e.g., "that's not what happened;" "no, you're wrong, I was there") my perspectives or s/he was neither particularly confirming nor particularly disconfirming, but relatively neutral.
- 2: The other person tended to disagree with my telling more than agree. There was more of a disconfirming tone in response to my contributions than confirming comments. More disagreement.
- 1: The other person consistently disconfirmed my experience of the story. He/she continually disagreed with my comments. Disagreements were frequent and potentially negative.

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Self-Report of Other's Global Attentiveness Perspective

Overall, how much would you say the other person was attentive to your perspective? Please place a checkmark next to the statement that best reflects your interaction.

- 5: During the telling of the story, the other person frequently demonstrated an understanding that s/he may have a different perspective, but listened to my views, and incorporated my perspectives into the interaction (e.g., acknowledged the other's comment and make it part of his/her subsequent comments).
- 4: The other person sometimes acknowledged my perspectives and included them in his/her subsequent comments.
- 3: The other person sometimes acknowledged my perspectives and sometimes ignores them (e.g., does not acknowledge that I had a different experience/something to add and did not incorporate this perspective into his/her subsequent comments). I felt there was a balance in perspective taking.

- 2: The other person rarely took my perspectives into account. He/she occasionally verbally or nonverbally acknowledged my comments, but generally did not integrate these comments into his/her own and did not explicitly seek out my perspectives.
- 1: The other person seemed to ignore my perspective. There was a sense that the stories are separate and distinct for each of us and the other person seemed to only recognize his/her own experience.

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PANAS

Instructions: Please report the extent to which you are currently feeling the following:

		<u>Not at all</u>			<u>Extremely</u>	
	Interested	1	2	3	4	5
*	Distressed	1	2	3	4	5
	Excited	1	2	3	4	5
*	Upset	1	2	3	4	5
	Strong	1	2	3	4	5
*	Guilty	1	2	3	4	5
	Enthusiastic	1	2	3	4	5
*	Stressed	1	2	3	4	5
*	Scared	1	2	3	4	5
	Proud	1	2	3	4	5
*	Hostile	1	2	3	4	5
*	Alert	1	2	3	4	5
*	Irritable	1	2	3	4	5
	Inspired	1	2	3	4	5
*	Ashamed	1	2	3	4	5
	Determined	1	2	3	4	5
*	Nervous	1	2	3	4	5
	Attentive	1	2	3	4	5
*	Jittery	1	2	3	4	5
	Active	1	2	3	4	5
*	Afraid	1	2	3	4	5

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State Trait Anxiety Inventory

Read each statement and select the appropriate response to indicate how you feel right now, that is, at this very moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

- | | | | |
|---------------|----------|----------|--------------|
| 1 | 2 | 3 | 4 |
| Not at all | A little | Somewhat | Very Much So |
| I feel calm | | | |
| I feel secure | | | |
| I feel tense | | | |

- I feel strained
- I feel at ease
- I feel upset
- I am presently worrying over possible misfortunes
- I feel satisfied
- I feel frightened
- I feel uncomfortable
- I feel self-confident
- I feel nervous
- I feel jittery
- I feel indecisive
- I am relaxed
- I feel content
- I am worried
- I feel confused
- I feel steady
- I feel pleasant

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Overall how satisfied were you with the interaction?
 “Not Satisfied at All” 1 2 3 4 5 “Completely Satisfied”

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Based on a typical interaction with a friend how different did it feel to interact with the person today?
 “Very Different” 1 2 3 4 5 “Similar”

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We want to know a little about your perceptions of the interaction.

(Perceptions of Communicated Perspective-Taking)

Directions: Based on your interactions with the other person over the last study session, please rate the degree to which you think s/he engaged in the following behaviors.

- | | | | | |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |
- 1) S/he was attentive to me during our conversation.
 - 2) S/he listened to me when I told my story.
 - 3) S/he was disengaged (didn't pay attention) during our interaction.
 - 4) S/he gave me plenty of space to talk about my problem.
 - 5) S/he asked me questions at appropriate times during our interaction.
 - 6) S/he and I were in sync during our conversation.
 - 7) My conversation with my friend felt disjointed.
 - 8) S/he contributed relevant information to the conversation.
 - 9) S/he helped me say what I wanted to say.
 - 10) S/he was self-centered during our conversation
 - 11) My mother was respectful of me when I talked about my problem.

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Mental Health Symptoms: Mental and Physical Health Scale

Directions: The questions in this scale ask you about your feelings and thoughts during the last week. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, do not try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate. All questions are asking you how you have felt during the LAST WEEK.

Never	Almost never	Sometimes	Fairly often	Very often
1	2	3	4	5
How often have you been upset because of something that happened unexpectedly?				
How often have you felt that you were unable to control the important things in your life?				
How often have you felt nervous and “stressed”?				
How often have you dealt successfully with irritating life hassles?				
How often have you felt that you were effectively coping with important changes that were occurring in your life?				
How often have you felt confident about your ability to handle your personal problems?				
How often have you felt that things were going your way?				
How often have you found that you could not cope with all the things that you had to do?				
How often have you been able to control irritations in your life?				
How often have you felt that you were on top of things?				
How often have you been angered because of things that happened that were outside of your control?				
How often have you found yourself thinking about things that you have to accomplish?				
How often have you been able to control the way you spend your time?				
How often you have felt difficulties were piling up so high that you could not overcome them?				

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General Health questionnaire (GHQ-12) (12-items)

Instructions: Please identify the frequency that each of the following has occurred in the PAST MONTH for you.

	Never		Sometim es		Very Often
	1	2	3	4	5
*	1	2	3	4	5

CPT AND BIOLOGICAL STRESS

	Felt that you were playing a useful part in things?	1	2	3	4	5
	Felt capable of making decisions about things?	1	2	3	4	5
*	Felt constantly under strain?	1	2	3	4	5
*	Felt that you couldn't overcome your difficulties?	1	2	3	4	5
	Been able to enjoy your normal day-to-day activities?	1	2	3	4	5
	Been able to face up to your problems?	1	2	3	4	5
*	Been feeling unhappy and depressed?	1	2	3	4	5
*	Been losing self-confidence in yourself?	1	2	3	4	5
*	Been thinking of yourself as a worthless person?	1	2	3	4	5
	Been feeling reasonably happy, all things considered?	1	2	3	4	5

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Have you met or know the person you had an interaction with before coming into the lab today?

Yes No

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(SHOWN ONLY IF PERSON STATES "YES" S/HE KNOWS THE OTHER PERSON PRIOR)

Relational Satisfaction Scale (11-items)

Instructions: Please circle the number that most closely describes your feelings toward your relationship with the other person.

Miserable	1	2	3	4	5	6	7	Enjoyable
Hopeful	1	2	3	4	5	6	7	Discouraging
Free	1	2	3	4	5	6	7	Tied Down
Empty	1	2	3	4	5	6	7	Full
Interesting	1	2	3	4	5	6	7	Boring
Rewarding	1	2	3	4	5	6	7	Disappointing
Doesn't give me much chance	1	2	3	4	5	6	7	Brings out the best in me
Lonely	1	2	3	4	5	6	7	Friendly
Hard	1	2	3	4	5	6	7	Easy
Worthwhile	1	2	3	4	5	6	7	Useless

All things considered, how satisfied are you with your relationship with the other person right now?

Not Satisfied at all 1 2 3 4 5 Highly Satisfied

What is the nature of your relationship with the person you just interacted with?

- Friend
- Classmate
- Acquaintance
- In a romantic relationship
- Other: _____

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Demographics

What is your sex?

- Female
- Male
- Rather not disclose

What is your age? (*This will be a drop down list of 18-100*)

_____years of age

What is your ethnicity?

- European American/White
- African American/ Black
- Latin American/Hispanic
- Asian American/Asian/Pacific Islander
- Other: _____

What year of college are you currently?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student
- Not in College
- Other: _____

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“Thank you for your participation in this study. Please click the link below to fill out information to collect extra credit (if offered by instructor). After you fill out the extra credit information please click ‘*submit*’ to finalize your survey.”

[Survey Completion]

Appendix F: Listener’s Pre-Interaction Survey

LISTENER

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When is the last time you consumed caffeine? _____ hours
 When is the last time you consumed alcohol? _____ hours
 When is the last time you consumed nicotine? _____ hours

-----PAGE BREAK-----

PANAS

Instructions: Please report the extent to which you are currently feeling the following:

		<u>Not at all</u>				<u>Extremely</u>
	Interested	1	2	3	4	5
*	Distressed	1	2	3	4	5
	Excited	1	2	3	4	5
*	Upset	1	2	3	4	5
	Strong	1	2	3	4	5
*	Guilty	1	2	3	4	5
	Enthusiastic	1	2	3	4	5
*	Stressed	1	2	3	4	5
*	Scared	1	2	3	4	5
	Proud	1	2	3	4	5
*	Hostile	1	2	3	4	5
*	Alert	1	2	3	4	5
*	Irritable	1	2	3	4	5
	Inspired	1	2	3	4	5
*	Ashamed	1	2	3	4	5
	Determined	1	2	3	4	5
*	Nervous	1	2	3	4	5
	Attentive	1	2	3	4	5
*	Jittery	1	2	3	4	5
	Active	1	2	3	4	5
*	Afraid	1	2	3	4	5

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(Random Assignment to Condition 1 or Condition 2)

-----**Condition 1 (High Communicated Perspective-Taking)**-----

Instructions: During your interaction with the other person you will be listening to him/her share a personal story. During the interaction we request that you actively try to take the perspective of the other person. Below are behaviors that are found to relate to perspective-taking in an interaction. Do your best to enact and display behaviors that communicate that you are perspective-taking. The goal is for you to modify your normal

behavior in an interaction towards the behaviors below, try not to let the other person know you are purposely changing your behavior.

Perspective-taking: the ability to place yourself in another person's shoes

Communicated perspective-taking behaviors:

- **Attentiveness to Other's Perspective**
 - Asking the other person about his/her perspectives explicitly,
 - Make statements that indicate an understanding that the other person may have seen things differently
 - Acknowledging perspectives the other person has contributed to the conversation,
 - Including the other person's perspectives in your contribution to the conversation.
 - Nonverbal cues such as gestures and eye contact toward the other may accompany these verbal perspective-taking moves.
- **Confirmation of Other's Perspective**
 - Statements affirming the validity of others' experiences (e.g., "that's a good point.")
 - Statements affirming agreement (not necessarily agreement with the point, but with the description of their own experience, e.g., yes, I can see where you would feel that way).
 - Behaviors that show you are really trying to put yourself in the other person's shoes and can see things from that person's perspective.
 - Nonverbal behaviors indicating agreement or disagreement would also contribute to this process (e.g., head nodding or shaking, disbelieving/believing or disapproving/approving facial or vocal expressions).

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To ensure an understanding of your role in the following interaction please respond to the following questions appropriately.

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During the interaction you should focus on doing the following non-verbal behavior?

- Frequently nod your head in agreement with the other person
- Avoid nodding your head throughout the interaction

-----PAGE BREAK -----
The CORRECT response is to:
Frequently nod your head in agreement with the other person

-----PAGE BREAK -----
Your role during the interaction requests you do which of the following?

- Explicitly ask questions about the other person's perspective
- Avoid asking questions about the other person's perspective

-----PAGE BREAK-----

The CORRECT response is to:

Explicitly ask questions about the other person's perspective

-----PAGE BREAK-----

Overall, your role during the following interaction is to do your best to take on the other person's perspective and to verbally and non-verbally communicate that to the other person. Do you understand your role?

- Yes
- No

-----**Condition 2 (Low Communicated Perspective-Taking)**-----

Instructions: During your interaction with the other person, you will be listening to him/her share a personal story. During the interaction we request that you do not actively try to take the perspective of your friend. Below are behaviors that are found to relate to perspective-taking in an interaction. Do your best to NOT enact and display behaviors that communicate that you are perspective-taking. The goal is for you to modify your normal behavior in an interaction towards the behaviors below, try not to let the other person know you are purposely changing your behavior.

Perspective-taking: the ability to place yourself in another person's shoes

Communicated perspective-taking behaviors:

- **Inattentiveness to Other's Perspective**
 - Ignore your friend's ideas/perspective.
 - Acting as though there are two sides to a conflict and that your side is the right side.
 - Failing to ask for the other person's perspective
 - Not integrating the other person's perspective into the conversation.
- **Disconfirmation of Other's Perspective**
 - Statements that show you do not agree with the other person's perspective ("No, that's not what happened!")
 - Disconfirming tone of voice
 - Telling the other person that he or she is wrong or that his or her way of seeing things is not valid.

-----PAGE BREAK-----

To ensure an understanding of your role in the following interaction please respond to the following questions appropriately.

-----PAGE BREAK-----

During the interaction you should focus on doing the following non-verbal behavior?

- Frequently nod your head in agreement with the other person
- Avoid nodding your head throughout the interaction

-----PAGE BREAK-----

The CORRECT response is to:
Avoid nodding your head throughout the interaction

-----PAGE BREAK-----

- Your role during the interaction requests you do which of the following?
- Explicitly ask questions about the other person's perspective
 - Avoid asking questions about the other person's perspective

-----PAGE BREAK-----

The CORRECT response is to:
Avoid asking questions about the other person's perspective

-----PAGE BREAK-----

Overall, your role during the following interaction is to do your best to place yourself in your own shoes during the following interaction. Do you understand your role?

- Yes
- No

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Thank you

In the remaining time please simply sit back and quietly relax. Please avoid distractions such as your cell phone.

{Display the instructions for the given condition on screen during the remaining time}

Appendix G: Listener's Post-Interaction Survey

Self-Report of Self-Performance of Global Confirming Perspective

Overall, how much would you say the other person confirmed your perspective? Please place a checkmark next to the statement that best reflects your interaction.

- 5: The other person's perspective was always or almost always acknowledged and confirmed (e.g. "Oh that's a good point;" "Yes, I can see where you would feel that way"; nodding, smiling at another's perspective)
- 4: I confirmed the other person's perspectives some of the time and did not engage in any disconfirming behaviors.
- 3: I sometimes confirmed and sometimes disconfirmed the other person's perspective (e.g., "that's not what happened;" "no, you're wrong, I was there") I was neither particularly confirming nor particularly disconfirming, but relatively neutral.
- 2: I tended to disagree with the other person's telling more than I agreed. There was more of a disconfirming tone in response to my contributions than confirming comments. I displayed mostly disagreement.
- 1: I consistently disconfirmed the other person's experience. I continually disagreed with his/her comments. Disagreements were frequent and potentially negative.

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Self-Report of Self Performance of Global Attentiveness Perspective

Overall, how much would you say the other person was attentive to your perspective? Please place a checkmark next to the statement that best reflects your interaction.

- 5: During the telling of the story, I frequently demonstrated an understanding that the other person may have a different perspective, but listened to his/her views, and incorporated their perspectives into the interaction (e.g., acknowledged the other's comment and make it part of his/her subsequent comments).
- 4: I sometimes acknowledged the other person's perspectives and included them in his/her subsequent comments.
- 3: I sometimes sometime acknowledged and sometimes ignored the other person's perspective. I felt there was a balance in perspective taking.
- 2: I rarely took the other person's perspectives into account. I occasionally verbally or nonverbally acknowledge the other's comments, but generally

did not integrate these comments into my own and did not explicitly seek out the other’s perspectives.

- 1: I mostly ignored the other person’s perspective. There was a sense that the conversations were separate and distinct for each of us and I likely seemed to only recognize my own experience.

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PANAS

Instructions: Please report the extent to which you are currently feeling the following:

		<u>Not at all</u>			<u>Extremely</u>	
	Interested	1	2	3	4	5
*	Distressed	1	2	3	4	5
	Excited	1	2	3	4	5
*	Upset	1	2	3	4	5
	Strong	1	2	3	4	5
*	Guilty	1	2	3	4	5
	Enthusiastic	1	2	3	4	5
*	Stressed	1	2	3	4	5
*	Scared	1	2	3	4	5
	Proud	1	2	3	4	5
*	Hostile	1	2	3	4	5
*	Alert	1	2	3	4	5
*	Irritable	1	2	3	4	5
	Inspired	1	2	3	4	5
*	Ashamed	1	2	3	4	5
	Determined	1	2	3	4	5
*	Nervous	1	2	3	4	5
	Attentive	1	2	3	4	5
*	Jittery	1	2	3	4	5
	Active	1	2	3	4	5
*	Afraid	1	2	3	4	5

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We want to know a little about your perceptions of the interaction.

Perceptions of Performing Communicated Perspective-Taking

Directions: Based on your interactions with the other person over the last study session, please rate the degree to which you think s/he engaged in the following behaviors.

Strongly Disagree Disagree Neutral Agree Strongly Agree

1 2 3 4 5

- 1) I was attentive to the other person during our conversation.
- 2) I listened to the other person when s/he told the story.
- 3) I was disengaged (didn’t pay attention) during our interaction.

- 4) I gave the other person plenty of space to talk about his/her problem.
- 5) I asked questions at appropriate times during our interaction.
- 6) S/he and I were in sync during our conversation.
- 7) My conversation with the other person felt disjointed.
- 8) I contributed relevant information to the conversation.
- 9) I helped the other person say what s/he wanted to say.
- 10) I was self-centered during our conversation
- 11) I was respectful of the other person when s/he talked about his/her problem.
- 12) I used humor during our interaction.
- 13) I let the other person tell his/her version of the story.
- 14) I disagreed with the other person during our interaction.
- 15) I was kind during our interaction.
- 16) I interrupted the other person when s/he was talking.
- 17) I seemed to understand the other person's feelings.
- 18) I did a good job of acknowledging the other person's perspective.
- 19) I was sarcastic during our interaction.

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Overall how satisfied were you with the interaction?
 "Not Satisfied at All" 1 2 3 4 5 "Completely Satisfied"

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Based on a typical interaction with a friend how different did it feel to interact with the person today?
 "Very Different" 1 2 3 4 5 "Similar"

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Mental Health Symptoms: Mental and Physical Health Scale

Directions: The questions in this scale ask you about your feelings and thoughts during the last week. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, do not try to count up the number of times you felt a particular way, but rather indicate the alternative that seems like a reasonable estimate. All questions are asking you how you have felt during the LAST WEEK.

	Never	Almost never	Sometimes	Fairly often	Very often
	1	2	3	4	5
1. How often have you been upset because of something that happened unexpectedly?					
2. How often have you felt that you were unable to control the important things in your life?					

3. How often have you felt nervous and “stressed”?
4. How often have you dealt successfully with irritating life hassles?
5. How often have you felt that you were effectively coping with important changes that were occurring in your life?
6. How often have you felt confident about your ability to handle your personal problems?
7. How often have you felt that things were going your way?
8. How often have you found that you could not cope with all the things that you had to do?
9. How often have you been able to control irritations in your life?
10. How often have you felt that you were on top of things?
11. How often have you been angered because of things that happened that were outside of your control?
12. How often have you found yourself thinking about things that you have to accomplish?
13. How often have you been able to control the way you spend your time?
14. How often you have felt difficulties were piling up so high that you could not overcome them?

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Perceived Stress Scale (PSS) (10-items)

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

	Never		Sometimes		Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	1	2	3	4	5
In the last month, how often have you felt that you were unable to control the important things in your life?	1	2	3	4	5
In the last month, how often have you felt nervous and “stressed”?	1	2	3	4	5
In the last month, how often have you felt confident about your ability to handle your personal problems?	1	2	3	4	5
In the last month, how often have you felt that things were going your way?	1	2	3	4	5

In the last month, how often have you found that you could not cope with all the things that you had to do?	1	2	3	4	5
In the last month, how often have you been able to control irritations in your life?	1	2	3	4	5
In the last month, how often have you felt that you were on top of things?	1	2	3	4	5
In the last month, how often have you been angered because of things that were outside of your control?	1	2	3	4	5
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	1	2	3	4	5

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General Health questionnaire (GHQ-12) (12-items)

Instructions: Please identify the frequency that each of the following has occurred in the PAST MONTH for you.

	Never		Sometim es		Very Often
Been able to concentrate on whatever you are doing?	1	2	3	4	5
* Lost much sleep over worry?	1	2	3	4	5
Felt that you were playing a useful part in things?	1	2	3	4	5
Felt capable of making decisions about things?	1	2	3	4	5
* Felt constantly under strain?	1	2	3	4	5
* Felt that you couldn't overcome your difficulties?	1	2	3	4	5
Been able to enjoy your normal day-to-day activities?	1	2	3	4	5
Been able to face up to your problems?	1	2	3	4	5
* Been feeling unhappy and depressed?	1	2	3	4	5
* Been losing self-confidence in yourself?	1	2	3	4	5

CPT AND BIOLOGICAL STRESS

*	Been thinking of yourself as a worthless person?	1	2	3	4	5
	Been feeling reasonably happy, all things considered?	1	2	3	4	5

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Have you met or know the person you had an interaction with before coming into the lab today?

Yes No

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(SHOWN ONLY IF PERSON STATES “YES” S/HE KNOWS THE OTHER PERSON PRIOR)

Relational Satisfaction Scale (11-items)

Instructions: Please circle the number that most closely describes your feelings toward your relationship with the other person.

Miserable	1	2	3	4	5	6	7	Enjoyable
Hopeful	1	2	3	4	5	6	7	Discouraging
Free	1	2	3	4	5	6	7	Tied ^P _{SEP} Down
Empty	1	2	3	4	5	6	7	Full
Interesting	1	2	3	4	5	6	7	Boring
Rewarding	1	2	3	4	5	6	7	Disappointing
Doesn't give me much chance	1	2	3	4	5	6	7	Brings out the best in me
Lonely	1	2	3	4	5	6	7	Friendly
Hard	1	2	3	4	5	6	7	Easy
Worthwhile	1	2	3	4	5	6	7	Useless

All things considered, how satisfied are you with your relationship with the other person right now?

Not Satisfied at all 1 2 3 4 5 Highly Satisfied

What is the nature of your relationship with the person you just interacted with?

- Friend
- Classmate
- Acquaintance
- In a romantic relationship
- Other: _____

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Demographics

What is your sex?

- Female
- Male
- Rather not disclose

What is your age? (*This will be a drop down list of 18-100*)

_____years of age

What is your ethnicity?

- European American/White
- African American/ Black
- Latin American/Hispanic
- Asian American/Asian/Pacific Islander
- Other: _____

What year of college are you currently?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student
- Not in College
- Other: _____

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Has anyone discussed their experience with this study with you prior to coming into the lab today? (*Please answer truthfully; your response will not impact your ability to receive credit for your participation*)

Yes No

If “yes”, please briefly state what you heard about the study in the space below.

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Did it feel like the person you interacted with was behaving oddly?

Yes No

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“Thank you for your participation in this study. Please click the link below to fill out information to collect extra credit (if offered by instructor). After you fill out the extra credit information please click ‘*submit*’ to finalize your survey.”

[Survey Completion]

Appendix H: IRB Approval Form



Institutional Review Board
University of Missouri-Columbia

190 Galena Hall; Dc074.00
Columbia, MO 65212
573-882-3181
irb@missouri.edu

October 10, 2016

Principal Investigator: Ryan M Maliski
Department: Communication

Your IRB Application to project entitled The Process of Sharing and Listening to Stories in Zero History Relationships was reviewed and approved by the MU Institutional Review Board according to the terms and conditions described below:

IRB Project Number	2006369
IRB Review Number	218259
Initial Application Approval Date	October 07, 2016
IRB Expiration Date	October 07, 2017
Level of Review	Expedited
Project Status	Active - Open to Enrollment
	45 CFR 46.110.a(f)(6)
Expedited Categories	45 CFR 46.110.a(f)(4)
	45 CFR 46.110.a(f)(7)
Risk Level	Minimal Risk
Type of Consent	Alteration of Consent

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the approval:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated problems, adverse events, and deviations must be reported to the IRB within 5 days.
3. All changes must be IRB approved prior to implementation unless they are intended to reduce immediate risk.
4. All recruitment materials and methods must be approved by the IRB prior to being used.
5. The Continuing Review Report (CRR) must be submitted to the IRB for review and approval at least 30 days prior to the project expiration date. If the study is complete, the Completion/Withdrawal Form may be submitted in lieu of the CRR.
6. Maintain all research records for a period of seven years from the project completion date.
7. Utilize the IRB stamped consent documents and other approved research documents located within the document storage section of eCompliance. These documents are highlighted green.

Appendix I: Laboratory Script

Introduction:

Welcome to the communication interaction laboratory, thank you for coming in today. Before we begin I would like you to look over this consent form (hand over a consent form). Please read over the document, if you have any questions feel free to ask me.

Ice Breaking Interaction:

Before we get further into the study, I would like you two to briefly introduce yourselves to each other. First, have either of you met before (*wait for answer*)? Ok, thank you.

For the next two to three minutes I would like you two to briefly get to know each other. Feel free to share your first name and what some of your interests in life are. If you would like other suggestions for topics to discuss in getting to know each other, please refer to this list of questions (*place a sheet with ice-breaker prompts on it*). This conversation will not be recorded.

I will step out of the room and you two may begin to chat, when I come back into the room I will give you instructions about the next step of the study.

Do you have any questions? Alright, you may begin to chat.

Preview of the study:

During your visit to the lab today you will be taking part in a 10-minute conversation. During the interaction you each will be assigned a role: either listener or teller. The teller will be sharing a story about a recent experience. Furthermore, I will attach an ear clip to your earlobe that will measure your heart rate throughout the lab visit.

In order to decide your role I have these two cards (*present the cards*). Please select and card and turn it over, that will be your role during the interaction.

Ok thank you. So you are the teller and you will be the listener. I will now have you each go to separate room. Please sit down in front of the computer in your assigned room. Once in the room a researcher will attach the ear clip to your earlobe and start the cardiovascular recording. After that, the computer will confirm your role in the interaction and give you further instructions on being a teller or listener. This pre-interaction period will last 10-minutes and after that a researcher will re-enter the room and re-unite the two of you for the 10-minute interaction.

You may now both enter your assigned room.

Set up of the Interaction

The first 10-minutes are up (*researcher stops cardiovascular recording*). Now it is time to come back into the first room and have an interaction.

To the teller: Please remember to discuss the recent stressful experience that you identified on the survey. You may begin telling the story when the researcher exits the room.

To the listener: Please remember to enact the behaviors the display (high or low) perspective-taking during the interaction.

(Both participants back in the interaction room. The researcher will start the second cardiovascular recording)

When I exit the room you two may begin your interaction.

(Researcher exits room. Starts the audio/video recording and starts a timer)

Ending the Interaction

(After the 10 minutes the researcher will stop the audio/video recording and re-enter the interaction room.)

Your 10-minute interaction is not complete.

(The researcher will stop the cardiovascular recording)

Please return to the room that you both started in and sit in front of the computer again. There will be a brief survey. After you complete the survey please sit in silence and relax. This post-interaction relaxation period will last 10-minutes.

(Researcher will follow the participant into the room and start the third cardiovascular recording)

Concluding the Study

(Researcher will re-enter the room and stop the cardiovascular recording).

Thank you for your time today. *(Researcher will pull up the link to extra credit)*. In order to receive extra credit you will need to fill out this page; once you are done with that you are free to leave.

I would briefly like to inform you that today study was intended to understand the process of sharing a stressful experience with another person and the impact of having a specific role in the interaction. If for any reason you experience any emotional discomfort as a result of this study please feel free to reach out to the health services found on this sheet (hand the health service contact sheet). Furthermore, please feel free to email me if you have any questions that arise after you leave the laboratory.

Do you have any questions for me at this time?

As a reminder, please do not discuss the details of this study with friends and classmates, as they might also have an opportunity to take part in the study and they information might compromise the integrity of the study.

Thank you again, have a good day.

Appendix J: Laboratory Debriefing Script

Thank you for coming into the laboratory today. Before dismissing you, I would like to take a moment to briefly explain today's study. The purpose of this study is to understand the stress process as it related to being a teller and listener. Specifically, we are interested in how different styles of listening impact the interaction and the stress of both a teller and a listener. To achieve this we randomly assigned the listener to display high- or low- communicated perspective-taking. Communicated perspective-taking is the process of "walking in the other person's shoes" and verbally/nonverbally letting the other person know you are doing that.

It was important that the teller did not know that the listener was instructed to perform a specific style of a listening, because we didn't want to skew the way the teller interacts and evaluates the interaction. Given this central focus of the study, we request that you do not share the details about the various listening condition with peers until data collection is completed at the end of the semester.

Be aware that after learning about the involvement of deception in the study you have the right to remove your record of this interaction with no penalty. If you experience any emotional or psychological discomfort after leaving the laboratory today, please contact the university's counseling and psychological services (*give participants the handout*).

At this time, do you have any questions or concerns about the study?

Appendix K: Consent Form

The Process of Sharing and Listening to Stories in Zero History Relationships

You are being asked to participate in a research study. Before you give your consent to volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Investigators:

Primary Investigator: Ryan Maliski, M.A., Department of Communication

Advisor: Haley Horstman, Ph.D., Department of Communication

Purpose of the Study: To understand the process of telling and listening to a story.

Description of the Study: In this study you will be requested to fill out a brief survey and schedule a time to visit the communication laboratory in Switzler Hall. The visit will consist of approximately 45-minutes and involve you either sharing or listening to a story with a peer you have not met previously. In the laboratory you will take two brief surveys and take part in a 10-minute interaction. During this period, your heart rate will be continuously measured, by attaching an ear clip to your ear lobe. Additionally, the brief 10-minute interaction will be audio/video recorded.

Risks or Discomforts: This study involves minimal risk. If at any time in the study you feel uncomfortable, you may discontinue participation with no explanation, either temporarily or permanently.

Benefits of the Study: This study will contribute to communication research. With respect to society, the information found in the study has the potential to contribute to an understanding of family communication on the well-being of a young adult.

Confidentiality: Confidentiality will be maintained to the extent allowed by law. Your name will not be collected during the questionnaire portion of this study. Your name for extra credit will be collected in a separate survey that will be linked at the end of the survey. There will be no identifiable information collected during the survey. While we cannot guarantee that the person you talk with will not share information you discussed outside of the laboratory, we will request that any information discussed in the laboratory not be discussed outside the laboratory.

Cost and Compensation to Participate: Instructors may offer extra credit to their students with proof of participation in research. There will be a final page in the survey

asking for you to give your name and your instructor's name for extra credit. Your cost consists of 45 minutes or less of time to take the survey. Your compensation for participation will include 45 minutes of time, which equals 5 points extra credit. If you wish to not take the survey, you may write a 2000 word essay detailing 5 topics that college students might find stressful and how the stress might impact their efficacy in school.

Voluntary Nature of Participation: Participation in this study is voluntary. Your choice of whether or not to participate will not influence your future relations with the University of Missouri. If you decide to participate, you are free to withdraw your consent and to stop your participation at any time without penalty or loss of benefits to which you are allowed.

Consent to Participate: Responding "Yes" indicates that you agree to be in the study and have been told that you can change your mind and withdraw your consent to participate at any time. You may print a copy of this consent form.

Questions about the Study: If you have any questions about the research now, please ask. If you have questions later about the research, you may contact Ryan Maliski (email: rmc3f@missouri.edu) or the project advisor Haley Horstman (email: horstmanh@missouri.edu). If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Campus Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-9585 or umcresearchcirb@missouri.edu.

Appendix L: IRB Deception Sub-Form

1. Deception

1. *Describe the type of deception being used.*

Consider both deception by omission (an important aspect of the study is withheld from the participant) and deception by commission (the participant is deliberately given false information about some aspect of the research). Note: Deception by commission cannot be Exempt.

The study uses deception by omission, because the “teller” in the study is unaware that the “listener” has been instructed to engage in the interaction in one of two ways.

2. *Justify the use of deception in your research and describe how it is a necessary and unavoidable component to your research design.*

Further explain how it provides value to the body of knowledge.

The justification for using deception in the study is that the core of the study is the influence of different types of listening on the listener him/herself and on a teller that is unaware of being a recipient of different listening styles. One component is assessing evaluations of an interaction based on being a recipient of different listening styles and if the teller was aware of the condition s/he could potentially skew his/her evaluation of the interaction based on what they think the researcher might expect to see or what they personally find more valuable on the surface. This will provide value because it will illuminate how stress is involved in initial interactions and the interplay of stress on interactional sense-making. We are aware that a high level of communicated perspective-taking is linked to self-reported health indicators, but an investigation into a potential biological underpinning for these outcomes is yet to be investigated. This knowledge will provide a more rounded understanding of health and communicated perspective-taking.

3. Debriefing

1. *How will the participants be debriefed?*

The debriefing is an essential part of the informed consent process and is required when the research involves deception. The debriefing provides the participants with a full explanation of the hypothesis being tested, procedures to deceive participants and the reasons why it was necessary.

After the participants take the closing survey they will be reunited in a room and be orally debriefed. During the debriefing that participants will be informed that the listener was instructed to enact either high- or low-communicated perspective-taking. This will be followed up with a brief definition of communicated perspective-taking. The participants will then be informed that the study was focused on the stress process as it pertains to an initial interaction and that it would be normal to experience slight stress during the interaction. Finally, the participants will be told that it was essential to the experimental design that the listener was unaware of the listener receiving instructions to allow for as natural interaction as possible and given this importance, we request that the participants not share details of the manipulation of the study with others to maintain the

integrity of the study. At this time the participants will be handed a form with contact information for counseling and psychological health on campus and asked if they have any questions.

2. *Who is responsible for debriefing the participants?*

The principle investigator will be responsible for providing the debriefing.

3. *Describe the timing of debriefing.*

Will the debriefing occur immediately following the experiment or will it be delayed? Justify a delayed debriefing.

The debriefing will occur at the very end of the experiment. Specifically, debriefing will occur after the 10-minute recovery period/closing survey following the interaction.

4. *Is the participant free to withdraw his/her data after being fully debriefed? This answer must be YES.*

Yes

4. Could the deception influence the participants' willingness to participate?

No

5. *Does the presence of deception increase the risk to participants? Explain.*

**Studies involving greater than minimal risk will not be approved.*

The use of deception in this study is not expected to increase risk to participants. The ways in which a person listens might cause small variations in comfort, but no more than any laboratory based initial interaction study.

6. Upload the debriefing script for IRB review.

Appendix M: Blackboard Recruitment Script

Hello,

You are invited to take part in a communication research study. This study will primarily take place in an interaction laboratory in Switzler hall. The decision to take part will consist of you first taking a brief online survey, followed by a request to schedule a time to come to the interaction lab. During your time in the lab we will measure your heart rate before, during, and after a brief interaction with a peer. If you are interested in participating in the study, please follow the link below. This link will bring you to a consent form, followed by the brief survey and scheduling.

If you have any questions, please contact Ryan Maliski (ryan.maliski@missouri.edu).

Thank you,

Ryan Maliski, M.A.
Ph.D. Candidate

[SURVEY LINK]

Appendix N: Appointment Reminder E-Mail

Hello,

Thank you again for taking the time to participate in this interaction study. You are receiving this email because you are scheduled to visit the interaction lab on the 3rd floor of Switzler hall in the next 24-hours. Below you will see the time and room you are scheduled to arrive in. You will spend approximately 45-minutes in the lab, so please schedule plan accordingly. Also, please refrain from consuming nicotine and caffeine at least 4 hours before arriving in the laboratory. While our scheduling is relatively tight, if you need to reschedule please email the lead investigator (Ryan.Maliski@mizzou.edu). Once again, it is important that you arrive at your scheduled time, because we are coordinating your visit with other participants.

Appointment Time: **(ENTER SCHEDULED TIME)**

Location: **304 Switzler Hall**

VITA

Ryan Maliski was born in Albany, New York the day after Black Monday in 1987. Shortly after his birth, he moved to North Carolina for several years, then moved to New Jersey for a couple of years, before moving to Southern California where he completed high school. In 2006, he started his undergraduate education at Arizona State University (ASU). His passion for communication and health research was further supported by his Master program at San Diego State University by Dr. Perry M. Pauley. After earning his Master degree at San Diego State University in 2014, he continued his education in Communication at the University of Missouri. During his time at the University of Missouri, he was advised by Dr. Haley Kranstuber Horstman. The doctoral program built his expertise in research methods and had an opportunity to design his first study that integrated physiological measurements into Communication research. He successfully defended his dissertation in Spring of 2017 and subsequently received his Ph.D. in Communication the Summer of 2017.