Couples and Childhood Adversity: A Prevention Science Approach to Exploring Resilience with Variable-Centered and Person-Centered Methods

by

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Abstract

Contemporary research on couple relationship education (CRE) goes beyond testing the effectiveness of CRE for the average participant and assuming a "one size fits all" approach. Scholars acknowledge the complexity of the CRE field, and recent research questions center on exploring effectiveness of CRE for specific subpopulations, tests of demographic moderators of CRE outcomes, and prospective process of change models. Rooted in prevention science principles with a risk and resiliency emphasis, this dissertation combines this framework for recent CRE research with a trauma-informed lens. Although recent reports suggest that participants of federally funded CRE programs report higher rates of adverse childhood experiences (ACEs) than samples previously studied by the CDC, little attention has been given to the potential influence ACEs have on CRE participants' individual and relational functioning before and after CRE. Even fewer studies have explored resiliency factors that may offset or outweigh risks due to ACEs while also assessing within-couple associations with an interdependence theory lens. The goals of this two-study dissertation were to (1) explore the concept of cumulative couple ACEs history, (2) advance the understanding of whether and how cumulative couple ACEs influence CRE program experiences for self and partner, (3) identify couple level risk and resiliency typologies in a diverse sample of couples using levels of two types of ACEs and two resiliency factors, and (4) determine how such typologies are linked to other sample characteristics including individual and relational functioning.

The first study takes a trauma-informed approach to the growing body of literature on dyadic processes of change after CRE and the influence of ACEs on CRE participants' experiences among diverse populations. With a sample of 409 couples, this study first tested whether improvements in couple relationship skills (self-care, conflict management, partner care)

immediately after a CRE program predicted improvements in one's own and one's partner's relationship quality one year later. Immediate post-program improvements in self-care, conflict management, and partner care predicted later improvements in relationship quality for oneself, but not one's partner. Additionally, this study tested whether skills-related processes of change are the same regardless of cumulative couple ACEs. The only moderation evidence indicated that the association between improvements in conflict management and later improvements in relationship quality was weaker for participants with more cumulative couple ACEs. Process of change models used in the first study inform CRE practice by identifying specific program elements that underlie the promotion of healthy couple relationships. Self-care, conflict management, and partner care were validated as skills that are emphasized in CRE. Additionally, combining process of change models with moderation informs CRE efforts within populations with diverse levels of ACEs. The current dissertation's findings suggest that couples with more ACEs experience benefits from CRE; however, they may need additional education and skills practice in conflict management.

To further illuminate the diversity within CRE participants, the second study took an unprecedented, person-centered, couple-focused approach to investigating ACE-related risk and resiliency. Study 2 expanded on the concept of cumulative couple ACEs and explored latent risk and resiliency profiles in 921 couples as indicated by both partners' ACEs, a novel measure of couple-focused mindfulness, and romantic self-efficacy. This study distinguished two types of ACEs - deprivation and threat dimensions - to offer new information about how the distinct dimensions may be differentially linked to individual and relational functioning. Six couple risk and resilience profiles were revealed and no one profile contained the majority of the sample, demonstrating the diversity of profiles. Two profiles were expected based on existing findings

about the negative link between ACEs and relational functioning: *Low Couple ACEs and Resilient* and *High Couple ACEs and Challenged*. We also distinguished two couple profiles that are unmatched in their levels of ACEs. One such profile, *High/Low ACEs and Resilient*, was characterized by partners' equally moderate levels of resiliency factors, despite one partner having high levels of ACEs while the other had low levels of ACEs. Participants in the other high/low ACEs profile, *Incongruent: High/Low ACEs, Challenged/Resilient*, reported expected levels of resiliency factors—the partner with more ACEs reported lower levels of resiliency factors, while the partner with fewer ACEs reported higher levels of resiliency factors. Lastly, two unexpected profiles emerged: *Low Couple ACEs but Challenged* and *High Couple ACEs but Resilient*.

Study 2 also explored differences between couple risk and resiliency groups in demographic characteristics, relationship functioning, and mental health functioning. Exploring differences in demographic characteristics and functioning between the profiles allowed us to deepen the understanding of the types of people who comprise the profiles and what their needs may be in a CRE program. The highest functioning profile was unsurprisingly the *Low Couple ACEs and Resilient* profile. The following profiles reported moderate levels of functioning consistent with overall average levels of functioning: *High/Low ACEs and Resilient, Incongruent: High/Low ACEs, Challenged/Resilient,* and *High Couple ACEs but Resilient.* The *Low Couple ACEs but Challenged* and *High Couple ACEs and Challenged* profiles reported low levels of functioning, on average. Tests of demographic differences between risk and resiliency profiles also reveal information about the makeup of the profiles. For example, the *Low Couple ACEs and Resilient* profile had fewer parents, while the *Low Couple ACEs but Challenged* had the highest proportion of parents. Additionally, the majority of the *High Couple ACEs but*

Resilient profile were African American/Black. Reasons for and implications of demographic differences among profiles are also discussed. This study adds to basic research on ACEs and resiliency and informs practice of community-based programming for couples.

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"What we know matters, but who we are matters more." – Dr. Brené Brown

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General Introduction

In the last two decades, researchers across various disciplines have prioritized understanding the role of healthy relationships for physical and mental well-being as well as the risks that adverse childhood experiences (ACEs) present to relational, mental, and physical health. A prevention science approach to the intersection of relationship science and the study of ACEs offers a valuable framework for studying risk and resiliency and emphasizes the application of this growing knowledge to practice with couples with diverse histories of ACEs. Prevention science is an interdisciplinary approach at the intersection of human science research and practice, as its main goals are to (1) advance knowledge of risk factors and protective factors related to negative health outcomes and (2) apply this knowledge to practice within communities to prevent major human dysfunction (Coie et a., 1993). It is crucial to understand both how ACEs impact relationship skills and processes, as well as what factors promote healthy relationships and mitigate risks of ACEs. Couple relationship education (CRE) is a community-based, preventive approach to promoting healthy relationships that has increasingly been offered to a broader segment of couples in communities, including couples with individual and collective ACEs (Doss et al., 2020; Hawkins & Erickson, 2015; Roddy et al., 2020; Wheeler et al., 2020). For couples with more ACEs, CRE can be an opportunity to learn and practice skills that can promote resiliency to potential negative effects of ACEs.

This dissertation, based in prevention science principles and incorporating aspects of more process-oriented theories, utilized longitudinal and cross-sectional, basic and applied research designs, as well as both variable- and person-centered quantitative methods to explore ACE-related risk and resiliency among CRE participants, an understudied area of inquiry. The goals of this dissertation more specifically were to (1) explore the concept of couple level ACEs

history, (2) advance the understanding of whether and how couple level ACEs influence CRE program experiences for self and partner, (3) identify couple level risk and resiliency typologies in a diverse sample of couples using levels of two types of ACEs and two resiliency factors, and (4) determine how such typologies are linked to other sample characteristics including individual and relational functioning. Importantly, this dissertation will explicate implications of findings for prevention programs working with diverse couples.

ACE-Related Risk and Resiliency

Since the seminal CDC study on ACEs was conducted (Felitti et al., 1998; Anda et al., 2009), a large body of research has accumulated suggesting more ACEs put individuals at risk for poorer physical and mental health in adulthood. A meta-analytic study of 37 studies demonstrated that more ACEs are linked to risky health behaviors such as smoking, heavy alcohol use, physical inactivity, sexual risk taking, and problematic drug use. Further, more ACEs are linked to negative health outcomes such as obesity, diabetes, cancer, heart disease, respiratory disease, as well as mental illness (Hughes et al., 2017). Meta-analytic results also demonstrated that more ACEs are linked to interpersonal violence victimization and perpetration, including that of intimate partner violence (Hughes et al., 2017). A few studies have also linked ACEs to negative, but less serious, relational outcomes such lower relationship quality and higher relationship distress (e.g., Wheeler et al., 2019; Wheeler et al., 2020).

While much of the literature on ACEs takes a deficit-approach to understanding the risks ACEs presents to functioning and health outcomes in adulthood, understanding resiliency among individuals who experience ACEs is equally, if not more important. This dissertation focused not only on risks that ACEs present, but also on resiliency factors people may possess or can develop that may offset or mitigate risk. Resilience is defined as an individual's capacity for successful

adjustment after experiences that threaten healthy development, such as adversity and chronic stress (Masten & Cincchetti, 2016). Many characteristics and skills can be associated with resilience after adversity.

Two potential resiliency factors that have been positively linked to post-traumatic growth as well as individual and couple functioning are mindfulness and self-efficacy (Benight & Bandura 2004; Hopwood & Schutte, 2017; Masten & Cincchetti, 2016; Whitaker et al., 2014). Individuals who have more self-efficacy have a greater sense of agency and respond to adversity with persistence (Benight & Bandura 2004; Masten & Cincchetti, 2016). Further, romantic self-efficacy (i.e., self-efficacy in the context of couple relationships) is positively linked to relationship quality (Riggio et al., 2013). In addition, the protective nature of mindfulness in the face of traumatic stress has been attributed to its focus on awareness of internal and external experiences in the present moment, instead of events of the past, and its principles of acceptance and nonjudgment of one's experiences (Follette et al., 2006). Individual mindfulness generally has also been positively linked to relationship quality in meta-analytic studies (McGill et al., 2016; Quinn-Nilas, 2020). Further, a newly-developed concept of mindfulness within the specific context of couple relationships, or couple-focused mindfulness, also demonstrates a comparatively stronger link to relationship quality than individual mindfulness (McGill et al., 2022). Mindfulness, self-efficacy, and many other potential resiliency factors related to couple relationships can be developed in the context of prevention or intervention work, such as CRE.

Promoting Healthy Relationships among Diverse Populations with Couple Relationship Education

As our collective understanding of the importance of healthy relationships for physical and mental health has improved over the last several decades, CRE emerged as a method of

improving relationship stability and quality in communities. CRE is a preventive approach to promoting healthy couple relationships through community-based education. Program format and content vary across program sites, and such diverse approaches to CRE can present challenges to the study of its effectiveness. While some findings on the effectiveness of CRE are mixed (e.g., Hsueh et al., 2012; Wood et al., 2010), more recent assessments of specific, newly-developed curricula using rigorous randomized control trials offer evidence that CRE is effective in promoting healthy relationship skills and overall relationship quality and individual well-being (e.g., Adler-Baeder, McGill, et al., 2022; Hatch et al., 2022; Hawkins et al., 2022; Markman et al., 2022; McGill et al., 2020).

In order to better understand the mixed findings on the effectiveness of CRE, scholars have called for more nuanced assessments, suggesting that CRE is not a "one size fits all" kind of intervention. Calls for the study of the diverse program delivery formats, program content, and participant samples have increased in the last decade. Heeding these calls, contemporary research on CRE includes assessments of effectiveness among diverse samples or specific sub-populations (e.g., couples with lower socioeconomic status, same-gender couples, couples in stepfamilies, Black couples, etc.) (e.g., Barton et al., 2021; Hawkins & Fackrell, 2010; Lucier-Greer & Adler-Baeder, 2012; Pepping et al., 2020), tests of mechanisms of post-program change to understand how CRE works (e.g., Barton et al., 2017; Cooper et al., 2021; Le et al., 2020; Rauer et al., 2014), and implementation science approaches to improve knowledge about best-practices in the implementation of CRE (e.g., Bradford et al., 2012; Totura Garrison et al., 2022).

As significant federal funding has been made available through the US Department of Health and Human Services' Administration for Children and Families for the implementation and study of CRE programs, access to these programs for lower-resourced communities has

increased. Lower-resourced communities are a key audience for many CRE efforts, as lack of resources is linked to increased relationship instability and functioning (Falconier & Jackson, 2020; Karney, 2021). Although CRE with more vulnerable populations has been encouraged by funders and ACEs are more likely to occur among lower-resourced populations (Conger et al., 2010; Cronholm et al., 2015; Gill & Page, 2006; Merrick et al., 2018; Zielinski, 2009), only four studies of CRE have explored the effects of ACEs on participants before or after programming (Cooper et al., 2023a; Cooper et al., 2023b; Wheeler et al., 2020; Wheeler et al., 2021). Although having more ACEs is linked with lower relationship functioning before CRE, having more ACEs did not attenuate positive program impact on relationship quality up to one year after two distinct CRE programs (Cooper et al., 2023b). Additionally, even fewer studies take a risk and resiliency approach to understanding traits or skills that those with more ACEs may have or can adopt in order to mitigate the effects of ACEs.

The Current Dissertation

To address the aforementioned gaps in the literature, the current dissertation consisted of two studies that both seek to advance the study of ACEs and CRE. The current dissertation is rooted in prevention science principles, particularly the emphasis on risk and resiliency, and takes assumptions from interdependence theory (Kelley & Thibaut, 1978; Wickham & Knee, 2012). Interdependence theory recognizes that characteristics and actions of one partner will influence the other partner and the overall relationship and vice versa. Interdependence theory underpins expectations of dyadic links between partners' ACEs and resiliency factors before and after CRE.

This dissertation also utilized diverse quantitative methods including variable-centered and person-centered approaches, basic and applied research questions, and cross-sectional and

longitudinal study designs. Variable-centered designs assess concurrent and longitudinal links between variables, while person-centered approaches allow researchers to uncover latent profiles or typologies of respondents in a sample based on indicator variables. Importantly, the studies also considered dyadic processes and couple level variables. These approaches are also surprisingly rare in studies of CRE and ACEs.

Recent findings demonstrate that CRE programs are similarly effective in improving relationship quality at all levels of ACEs (Cooper et al., 2023b), suggesting that there are resilience and protective factors among CRE participants with ACEs. Study 1 expanded on these findings and integrated interdependence theory assumptions. Study 1 explored *how* CRE works first by testing significant change among seven couple relationship skills, then by testing skills that improved with at least a .30 Cohen's *d* effect size (self-care, conflict management, and partner care) as mechanisms of change. Specifically, Study 1 tested prospective associations among one's immediate improvements in self-care, conflict management, and partner care and one's own and one's partner's relationship quality one year after the program. Additionally, Study 1 tested how these dyadic processes may differ for couples based on ACE exposure of both partners. This study adds to the CRE literature by indicating what couple relationship skills may be most salient for promoting longer-term relationship quality in diverse populations and in populations with higher ACE exposure. Implications center on informing CRE program developers and practitioners in what program content elements to prioritize for diverse and vulnerable populations.

Study 2 expanded on the concept of cumulative couple ACEs and took a person-centered approach by exploring latent risk and resiliency couple profiles as indicated by both partners' ACEs, couple-focused mindfulness, and romantic self-efficacy. Novel elements in this study

include the categorization of ACEs by two type (i.e., deprivation or threat) and the use of a new measure of couple-focused mindfulness. Additionally, Study 2 tested for differences among couple risk and resiliency groups in demographic characteristics, relationship functioning, and mental health functioning. The goal was to illuminate the diversity of couple profiles that likely exist in CRE participant populations. This study adds to basic research on ACEs and resiliency and informs practice of community-based programming for couples.

Chapter II. Study 1: Exploring Dyadic Processes of Change after Couple Relationship Education and considering Adverse Childhood Experiences

Couple relationship education (CRE) is a community-based, preventative approach to promoting healthy, happy relationships and avoiding negative relational outcomes such as dissatisfaction in relationships, unhealthy relational patterns, and instability (Markman et al., 2022). Early reports on federally funded CRE programs indicated mixed results when testing its effectiveness for vulnerable populations (e.g., Hsueh et al., 2012; Wood et al., 2010). However, more recent rigorous randomized control trials of CRE have demonstrated evidence of short-term longitudinal effectiveness in improving individual, couple, and family functioning, on average, in increasingly diverse samples (Adler-Baeder, McGill, et al., 2022; Barden et al., 2022; Hatch et al., 2022; Hawkins et al., 2022; Markman et al., 2022). In large part, evaluations of CRE have centered on participation in CRE as the determinant of outcomes. An area of CRE research that is growing and that is critical for understanding nuance in whether and how CRE programs are effective for diverse populations involves understanding possible moderators of program impact and processes within couples by which CRE improves individual and relational well-being.

CRE programs cover a broad array of distinct couple relationship and individual skills; yet minimal effort has been made to assess specific measures directly related to program content areas, changes in these, and their influence on later outcomes. Recently, some studies assessed and found evidence that specific elements discussed in programs such as communication, quality time, and emotional support explain relationship quality improvements (Carlson et al., 2022; Le et al., 2020). Another recent efficacy study of CRE included a measure of a group of relationship skills that correspond directly to program content and found evidence that improvements in these skills explain later enhancements in relationship quality a year later (Adler-Baeder, McGill, et al., 2022). While this latter finding collectively validated program content, it would be helpful to

study changes in skill areas more specifically, since some may be more or less amenable to change and comparatively more or less influential on relationship quality over time. This work to disaggregate changes in specific skills addressed in CRE will also benefit from using a dyadic approach since it is rare in studies of CRE. Exploring within-couple links among changes over time will serve to strengthen both empirical models of change and curriculum developers' and practitioners' knowledge of couple processes of change that can be expected.

Further, federal initiatives to promote healthy relationships have emphasized that CRE be made available to populations who are at higher risk for negative relational outcomes due to lower resources and adverse childhood experiences (ACEs) (Doss et al., 2020; Hawkins & Erickson, 2015; Roddy et al., 2020). Surprisingly though, given the diversity of current samples, there has been limited effort explicitly in evaluation designs to assess the vulnerability of the population served, particularly ACEs, and consider their influence on patterns of change. Two CRE programs, *ELEVATE* and *Couples Connecting Mindfully*, were recently found to impact relationship quality similarly for participants with any number of ACEs, up to one year after the program (Cooper et al., 2023b).

To date, no published study has assessed dyadic influences of ACEs on processes of change in specific skill areas using a large diverse sample of couples. As such, this study addressed this by first exploring changes in seven distinct relationship skills. We then tested whether the skill areas that changed the most (i.e., had at least .30 Cohen's *d* effect sizes) influenced relationship quality over time for self and partner. Additionally, this study sought to enhance the understanding of whether couples' collective amount of childhood adversity (cumulative couple ACEs) influences the link between the skill areas and later relational well-

being. Implications for these findings center on identifying key content areas of CRE that enhance relational well-being for diverse populations who experience various levels of ACEs.

Theoretical Framework

This study is grounded in a prevention science framework (Coie et al., 1993) as it seeks to understand the mechanisms by which a prevention program for couples improves relational well-being. Prevention science includes an emphasis on understanding risk and resiliency. This study first focuses on resiliency in relationships by testing assumptions of strengths-based approaches to CRE. The premise of CRE is to offer tools for couples to build from the foundation they already have and fine-tune skills that further enhance their relationship. Exploring positive changes in targeted CRE areas and their influence on healthy relationship outcomes strengthens the research support for that assumption. This study then integrates an index of risk factors, ACEs, that may influence processes of change. Understanding whether and how CRE programs operate differently (e.g., if some curriculum content is more effective than others among couples with more ACEs) is essential when studying CRE among diverse populations.

Further, when studying couples in prevention science, it is important to consider not only how individuals change after a prevention program, but also how partners may influence each other's changes. Interdependence theory (Kelley & Thibaut, 1978; Wickham & Knee, 2012) posits that the experiences, behaviors, and traits of one partner will influence not only their own relational well-being, but also their partner's relational well-being and the overall functioning of the relationship. As such, exploring dyadic prospective associations among changes is crucial to better understanding within-couple processes of change after CRE.

Couple Relationship Education

For over two decades, research has been accumulating on the evaluation of community-based CRE for diverse populations. While conflicting findings from three large CRE studies (Bir et al., 2012; Hsueh et al., 2012; Wood et al., 2010) contributed to much discussion regarding benefits of CRE (Cowan & Cowan, 2014; Hawkins, 2013; Johnson, 2012), results from 11 meta-analytic studies suggest that CRE is modestly successful in promoting healthy couple relationships for the average participant (e.g., Carroll & Doherty, 2003; Fawcett et al., 2010; Hawkins et al., 2022). Recent findings from rigorous randomized control trials provide even more convincing evidence of the benefits of CRE participation to indicators of overall relational well-being, such as couple quality, relationship satisfaction, and relationship commitment (Adler-Baeder, McGill, et al., 2022; Hawkins et al., 2022; Markman et al., 2022). Some studies provide more specifics, demonstrating CRE's effectiveness in enhancing distinct couple skills and processes such as communication, emotional intimacy, and conflict management (Hatch et al., 2022; Hawkins et al., 2022).

In order to better contextualize the results on CRE effectiveness for the average participant, a growing area of CRE research includes tests of *how* it is effective by exploring associations among post-program changes (e.g., Barton et al., 2017; Cooper et al., 2021; Rauer et al., 2014; Williamson et al., 2016). Implications for such assessments center on informing curriculum developers which content or implementation elements are successful in promoting relational well-being. A fundamental assumption of CRE is that teaching couples skills that are important for developing and maintaining fulfilling relationships will improve their relational well-being and satisfaction with their relationship. Communication has been tested as a content-related mechanism of change in relationship education, and findings are mixed (Stanley et al.,

2020). While many studies find support that improved couple communication predicts improved relational well-being (e.g., Barton et al., 2017; Hawkins et al., 2017; Le et al., 2020; Rauer et al., 2014; Roddy et al., 2020), others find that improvements in communication do not predict later improvements in relational well-being (Williamson et al., 2016) or indicate mixed results for men and women in different-sex couples (Baucom et al., 2006; Schilling et al., 2003; Stanley et al., 2007).

Overall, few studies of CRE use a dyadic approach to exploring program effectiveness (e.g., Carlson et al., 2017; Roberson et al., 2020) and among those studies exploring mechanisms of change only two have assessed within-couple change-on-change influences. Partner effects on improved relational well-being have been documented for increased positive interactions (Hawkins et al., 2017) and increased quality time (Carlson et al., 2022). This highlights CRE's impact on the couple unit, suggesting that one's reports of improvements in positive interactions and quality time promote not only their own perceptions, but both partners' perceptions of the relationship. While our understanding of how CRE is working for couples is improving, there is much left to be learned, especially regarding other specific content areas of CRE.

The *National Extension Relationship and Marriage Education Model* provides a framework to guide research on multiple potential mechanisms of change after CRE (*NERMEM*; Futris & Adler-Baeder, 2013). *NERMEM* identifies seven research-based factors related to healthy couple functioning for CRE curriculum developers to focus on: (1) care for self, (2) choose: intentionality and choosing to prioritize the relationship, (3) know: intimate knowledge among partners, (4) care: showing affection and appreciation for your partner, (5) share: developing and maintaining a friendship and shared identity, (6) manage: conflict management, and (7) connect: connection to a broader community. A recent efficacy study included an

assessment of processes of change and found that improvements in these skills (assessed through a composite measure) immediately after a CRE program predicted improvements in relationship quality one year later for two distinct CRE curricula (Adler-Baeder, McGill, et al., 2022). Exploring these skills individually is a crucial next step in understanding which skills contribute more or less to improved relationship quality over time for self and partner.

Adverse Childhood Experiences and Adult Couple Relationships

Individuals who experience adverse childhood experiences (ACEs) are at an increased risk for a plethora of negative outcomes related to health and well-being (Felitti et al., 1998; Hughes et al., 2017), including relational well-being (e.g., Brown et al., 2015; Wheeler et al., 2021). ACEs have been negatively linked to general relationship functioning (Cooper et al., 2023a; Wheeler et al., 2020; Wheeler et al., 2021) as well as to serious negative relational outcomes such as interpersonal violence victimization and perpetration (Brown et al., 2015; Whitfield et al., 2013). The seminal ACEs study (Felitti et al., 1998) first demonstrated the surprisingly high rates of ACEs, finding that roughly 60% of individuals in a mostly white and well-educated sample reported at least one. More recent reports of more diverse and higher-risk samples demonstrate that populations with lower resources and groups who have been historically marginalized report higher rates of ACEs (Conger et al., 2010; Cronholm et al., 2015; Gill & Page, 2006; Merrick et al., 2018; Zielinski, 2009). For example, Merrick et al. (2018) found that individuals who identified as Black, Hispanic, gay/lesbian, bisexual, respondents without a high school education, and those who made less than $15,000 per year were more likely to report ACEs than respondents who were white, heterosexual, had at least a high school education, and were in any other income bracket.

Although recent CRE samples are economically diverse, as noted, due to enhanced accessibility to programming (Doss et al., 2020; Hawkins & Erickson, 2015; Roddy et al., 2020), very few recent studies consider risks to relational well-being related to participants' backgrounds involving adverse childhood experiences. Only 4 studies of CRE have included an assessment of ACEs and found that ACEs are negatively linked to relational well-being among CRE participants at program start (Wheeler et al., 2020; Wheeler et al., 2021; Cooper et al., 2023a; Cooper et al., 2023b). Dyadic assessments of ACEs among CRE participants demonstrate that one's ACEs are also negatively associated with their partner's relational and individual well-being before CRE (Wheeler et al., 2020; Wheeler et al., 2021; Cooper et al., 2023a). While having more ACEs is linked with lower reports of relationship functioning before CRE (Wheeler et al., 2020; Wheeler et al., 2021; Cooper et al., 2023a), ACEs have not been found to interfere with CRE program impact on relationship quality (Cooper et al., 2023b).

Such dyadic assessments are critical to understanding how one partner's ACEs influence the other and vice-versa. Literature based on clinical populations experiencing trauma recognizes the impact of systemic traumatic stress in which trauma of one partner influences the relationship dynamic overall as well as the other partner's experience of the relationship (Nelson Goff & Smith, 2005). Systemic traumatic stress can present within couples in multiple ways. Clinical researchers have explored single-trauma couples and dual-trauma couples distinctively. Single-trauma couples are couples in which only one partner experienced a traumatic event(s) or circumstance(s), while dual-trauma couples consist of two partners who both experienced trauma from the same or distinct events or circumstances (Balcom, 1996; Nelson Goff et al., 2006). Single- and dual-trauma couples have both similar and distinct challenges. For example, partners in single- and dual-trauma couples may experience extreme emotional reactivity or lack of

emotional availability of a traumatized partner, emotional or instrumental difficulty in caregiving for a partner who is experiencing the effects of trauma, and intense pursuer-distancer patterns (Balcom, 1996; Nelson Goff et al., 2006). Dual-trauma couples may uniquely be challenged with partners' lack of empathy due to very different traumatic experiences, issues with over-identification due to similar traumatic experiences, or competition regarding whose coping strategies are most successful or who has experienced the most post-traumatic growth (Balcom, 1996). For example, conflict could occur if one believes that their partner's coping strategies are unhealthy or less helpful than their own. Understanding the cumulative risk associated with trauma and adversity, one may assume that dual-trauma couples have poorer relationship functioning, although findings are mixed (Nelson Goff et al., 2014; Ruhlmann et al., 2018). Dual-trauma couples also report strengths such as mutual understanding and shared goals (Braughton et al., 2022). It could be that greater levels of understanding, empathy, and support between partners in dual-trauma couples outweighs risk associated with effect of trauma.

Research on single- and dual-trauma couples has considered mostly one trauma type/occurrence in partners, such as whether one or both partners experienced child maltreatment, not cumulative trauma or adversity such as the additive ACE Scale; however the cumulative effects of adversity for the individual has been well-documented (e.g., Hughes et al., 2017). No known study has considered the role of cumulative risks of both partners' ACEs to the relationship. Combining the understanding of systemic traumatic stress with the cumulative nature of ACEs, exploring the total amount of ACEs between two partners is warranted. This is the first known study to assess "cumulative couple ACEs," or total amount of ACEs between both partners.

Research on factors that promote resiliency among couples in CRE with a trauma history is also growing. A recent study of ACEs among CRE participants considered resiliency factors and found that compared to ACEs, romantic self-efficacy, a characteristic that can be developed through skills training, was positively and more strongly associated with relationship quality for both men and women at program start (Cooper et al., 2023b). In addition to baseline associations, there is some evidence of ACEs' influence on relationship education program outcomes. One study found that participants attending relationship education as an individual who reported four or more ACEs also reported greater reductions in individual distress as compared to participants who reported zero ACEs or one ACE (Wheeler et al., 2020). However, when assessing ACEs' influence on relational program outcomes among participants who attended CRE with a partner and testing thresholds of ACEs (1, 2, 3, 4+, compared to having fewer ACEs), rather than testing differences between groups reporting 0, 1, 2, 3, and 4+ ACEs, Cooper et al. (2023b) found that ACEs did not moderate program effects of two different CRE curricula for the individual.

These findings indicated that participants who reported more ACEs benefitted from the CRE programs similarly to those who reported fewer or no ACEs. When accounting for ACEs in a test of romantic self-efficacy and individual mindfulness as mechanisms of change in relationship quality after CRE, ACEs were not significantly linked with changes in any outcome (Cooper et al., 2023b). Notably, this study did not include a dyadic approach. While findings on the influence of ACEs on program outcomes after CRE are mixed, with one finding no influence and one finding added benefit when comparing the extreme groups, there is consistent evidence that participants who report more ACEs enter CRE at a higher risk for lower relational well-being. This warrants further exploration of ACEs' association with baseline functioning before

CRE and ACEs' influence after program participation and the consideration of dyadic influences.

The Current Study

Grounded in a prevention science framework with a risk and resiliency emphasis and using theoretical assumptions from interdependence theory that expect influences between partners, this study adds to the growing body of literature on dyadic processes of change after CRE and the influence of ACEs on CRE participants' experiences among diverse populations. Specifically, the current study addressed the following research questions:

Research Question 1: Do significant individual improvements of at least $d = .30$ effect size in relationship skills immediately after a program predict one's own and partner's changes in relationship quality one year after enrolling in a CRE program?

Research Question 2: Do cumulative couple ACEs moderate the dyadic, prospective associations between changes in relationship skills and later changes in relationship quality one year after CRE?

Methods

Procedure

Participants for this study were taken from a larger randomized control trial of two CRE curricula, *ELEVATE: Taking Your Relationship to the Next Level* (Futris et al., 2014) and *Couples Connecting Mindfully* (*CCM;* McGill et al., 2016). Couples were recruited through 9 community agencies in a southeastern state by word of mouth, fliers, social media, and other community advertisements. Participants had to be at least 19 years old, available to attend scheduled classes, and enroll with a partner to take part in the study. After study enrollment,

participants completed a baseline survey consisting of demographic questions and measures assessing various individual, couple, and family well-being constructs.

After completing the baseline survey, participants were randomly assigned to either *ELEVATE*, *CCM*, or a no-program control group. Both programs were then held at the respective community agencies in six two-hour sessions by a mixed-gender team of two facilitators. The *ELEVATE* program consists of eight modules covering the seven core relationship skills presented in *NERMEM* (Futris & Adler-Baeder, 2013). *CCM* is also grounded in *NERMEM*, with more emphasis on mindfulness, awareness of intra- and inter-personal processes that are important for healthy relationships, and developing mindfulness practices and skills. Participants were asked to complete follow-up surveys immediately post-program, six months after study enrollment, and one year after study enrollment. Surveys took one hour on average to complete, and participants were compensated $50 for each survey they completed.

Participants

The current study included 732 individuals in 409 couple relationships assigned to a CRE program and who attended at least three of six program sessions. A previous meta-analysis suggested that at least half of the program sessions are needed for participants to benefit (Arnold & Beelman, 2019). To be included in the current study, participants also needed to have responded to all items on the ACEs assessment which was administered at the two-year follow-up survey.

Fifty-three percent of the sample identified as women, 47% as men. Ninety-nine percent were in different-gender relationships, while 8 individuals were in same-gender relationships. Seventy-five percent of the sample was married, and 25% were in a committed relationship or engaged. Sixty-three percent of the sample was white/Caucasian, 31% percent of the sample was

Black/African American, 6% were another race or ethnicity. Eleven percent of the current sample reported an annual household income of less than $14,000, 11% reported between $14,000 and $25,000, 15% reported between $25,000 and $40,000, 31% reported between $40,000 and $75,000, 18% reported between $75,000 and $100,000, and 15% reported an annual household income of over $100,000.

Sixty-four percent of individuals in the current sample reported at least one ACE and 19% reported having four or more of 10 intrafamilial ACEs. These proportions are higher than the original ACEs study (Felitti et al.,1998), and this is likely due to the current sample being more economically and racially diverse than Felitti et al.'s sample. The current rates are more consistent with economically disadvantaged and racial minority samples, such as in the Philadelphia ACEs Study (Wade et al., 2016).

Measures

Couple Relationship Quality

Couple relationship quality was measured using 10 items taken from the Quality Marriage Index (QMI; Norton, 1983), the Couple Satisfaction Index (CSI; Funk & Rogge, 2007), and the Commitment/Dedication Scale (Stanley & Markman, 1992). The three items from the QMI were: "We have a good relationship," "My relationship makes me happy," and "Our relationship is strong." The four items from the CSI included, "Please indicate the degree of happiness, all things considered, of your relationship," and "How rewarding is your relationship with your partner?" A sample of the three items from the Commitment/Dedication Scale is: "I feel good about our prospects to make this relationship work for a lifetime." Response anchors for all items on QMI and commitment ranged from one to seven. One item on the CSI ranged from one to seven, while the other three ranged from one to six. The Cronbach's alpha for

internal consistency demonstrated excellent reliability for all 10 items in the current sample at baseline and one-year follow-up (α = .96). There were no missing data due to multiple imputation methods used (description to follow); therefore, sum scores were calculated from the 10 items, similar to Adler-Baeder, McGill, et al. (2022) and Cooper et al. (2023b), for use at baseline and one-year follow-up. Higher scores indicated greater relationship quality.

Couple Relationship Skills

The Couple Relationship Skills Inventory (Adler-Baeder, Futris, et al., 2022) was used to assess seven relationship skill areas that were used as separate measures of relationship skills: Self-care (8 items), Choose (intentionality and prioritizing relationship enhancement; 4 items), Know (shared intimate knowledge among partners; 4 items), Care (positive interactions, showing affection and appreciation for partner; 4 items), Share (developing and maintaining friendship and shared identity; 3 items), Manage (conflict management; 5 items), and Connect (connection to broader community and social support; 4 items). All items were on a scale from one ("very strongly disagree") to seven ("very strongly agree"), and each subscale showed good reliability in the current sample (α = .69-.88) consistent with the original scale development (i.e., α = .71-.87; Adler-Baeder, Futris, et al., 2022) . Items for each subscale were summed and higher scores indicated higher skill levels.

Childhood Adversity

The Adverse Childhood Experiences Scale (Felitti et al., 1998) was used to assess childhood adversity. The ACEs Scale assessed 10 intrafamilial ACEs that occurred in the household: physical abuse, emotional abuse, sexual abuse, physical and emotional neglect, household substance abuse, household mental illness, witnessing domestic violence, having a caretaker who was incarcerated, and parental divorce. Responses were dichotomous (0 = no, 1 =

yes), and the scores (i.e., "yes" responses) were summed for each couple to obtain a value of couple ACEs for each individual in the couple.

Analytic Plan

Missing data were addressed using multiple imputation using the "mice" package in R. In this imputation procedure, observed data and relationships among observed data were used to predict missing item values. (Azur et al., 2011; van Buuren & Groothuis-Oudshoorn, 2011). Descriptive statistics including skewness and kurtosis were examined to ensure normal distribution of all variables.

Although gender is commonly the distinguishing variable when taking dyadic approaches to studying couples in mostly different-gender couple samples, all dyads were made indistinguishable by randomly assigning "partner 1" or "partner 2" status to each partner. One reason is that scholars suggest that decisions regarding distinguishability among dyads should be made based on research questions and variables of interest (Kenny, 2015; Peugh et al., 2013), and gender was not a variable of interest in the current study. Additionally, it is important to retain same-gender couples when studying diverse samples. There was no theoretical reason to expect actor and partner regression paths to be different between partner 1s and partner 2s due to their random designation, thus actor and partner regression paths were constrained to be equal for partner 1s and partner 2s, resulting in only one actor effect and one partner effect in each model (Peugh et al., 2013; West, 2013).

Correlations between couple skills, and relationship quality were obtained and bivariate relationships among the variables were examined. Before testing changes in couple relationship skills as a predictor of later improvements in relationship quality, paired samples *t*-tests were conducted to test pre-post program changes in each skill area and Cohen's *d* effect sizes were

examined. The ability to find significant change-on-change paths in prospective models is enhanced when there is significant change in the predictor measure of a larger magnitude. To account for the dependence among partners, *t*-tests were conducted separately for partner 1s and partner 2s. Skills in which either group of participants report significant on-average improvements with at least a .30 Cohen's *d* effect size (i.e., considered a moderate effect size; Cohen, 1988) were tested as a mechanism of change in CRE for Research Question 1.

For Research Question 1, testing dyadic prospective associations among residual changes in couple relationship skills and relationship quality one year later, autoregressive actor-partner interdependence models (APIM; Cook & Kenny, 2005) were used. Models were fit individually per skill. Relationship quality one-year after CRE (T4) of each partner was regressed onto immediate post-program (T2) levels of relationship skills of both partners. Baseline levels of skills and relationship quality were controlled for so that T2 and T4 variables essentially represented residual change (Castro-Schilo & Grimm, 2018; Kisbu-Sakarya et al., 2013). Model fit was assessed by examining chi-square goodness-of-fit, RMSEA, CFI, TLI, and SRMR values. Models were determined to have adequate model fit if the RMSEA was equal or below .08, CFI and TLI were above .90, and SRMR of less than .08 (Hu & Bentler, 1999; Kenny, 2020; MacCallum, et al., 1996).

Before testing Research Question 2, residual scores of immediate post-program couple relationship skills from RQ1 models were saved to use as observed residual change scores in subsequent models. Residual scores were used to create an interaction term of relationship skills change and cumulative couple ACEs with which to test moderation by cumulative couple ACEs. To test Research Question 2 assessing cumulative couple ACEs as a moderator of dyadic prospective associations among couple skills and relationship quality, the prospective process

models were fit with the T2 residual change scores of relationship skills, instead of modeling T2 skills raw scores controlling for baseline levels. Each partner's T4 relationship quality were again regressed onto their own T1 relationship quality, thus T4 relationship quality represented residual change. T4 relationship quality was regressed onto one's own and their partner's T2 residual change scores of couple skills. The interaction term of each partner's T2 skills residual change scores X cumulative couple ACEs was defined. T4 relationship quality was also regressed onto the interactions of one's own and their partner's T2 skills residual change and cumulative couple ACEs. I then probed significant moderation effects using simple slopes (-1 SD below the mean of cumulative couple ACEs and +1 SD above the mean) to determine the moderating nature of couple ACEs.

Results

Preliminary Results

Before testing primary research questions, demographic differences were tested after partners were randomly assigned partner 1 and partner 2 status to validate the random assignment procedure. In addition, descriptive statistics were examined to ensure normal distribution, and pre-post program *t*-tests were conducted to determine which skills would be used to test as mechanisms of change after CRE (i.e., those with significant pre/post mean level changes with an effect size of at least .30). Lastly, correlations were calculated to assess bivariate associations among variables used in primary models.

We found that there were no differences between partners randomly assigned to partner 1 and those assigned to partner 2 status based on program assigned (χ^2 = .09, df = 1, p = .77), gender (χ^2 = 2.20, df = 1, p = .12), race/ethnicity (χ^2 = 4.74, df = 4, p = .32), relationship status (χ^2 = .34, df = 2, p = .85), income (χ^2 = .93, df = 6, p = .99), or age (t = -.17, df = 722, p = .86),

validating the partner status random assignment procedure. Further, descriptive statistics for all study variables can be found in Table 1. Skewness statistics ranged from -1.28 to 1.11, and kurtosis statistics ranged from -0.47 to 2.56, indicating acceptable normal distributions (Byrne, 2010; George & Mallery, 2010; Hair et al., 2010). No transformations were required.

Based on paired samples *t*-tests, there were significant improvements in relationship quality from baseline to one year after program enrollment as well as in all seven couple relationship skills tested for both partners from baseline to immediate post-program (see Table 2). Self-care, conflict management, and partner care demonstrated significant improvements from baseline to immediate post-program with effect sizes of at least Cohen's $d = .30$ (range $d = .31$-$.44$). These three skills were then tested as predictors of later improvements in relationship quality. Determining that mean level changes were significant for the variables in the model allows for clearer interpretation of the change on change models. Bivariate correlations were computed for couple relationship quality, self-care, conflict management, partner care, and couple ACEs at baseline, and relationships among variables were assessed (see Table 3). As expected, partners' self-care, conflict management, and partner care were positively correlated with their own and their partners' relationship quality at baseline (r range = .34 - .54, $p \leq .001$). Couple ACEs were negatively correlated with each partner's relationship quality, self-care, and conflict management (r range = -.16 - -.28, $p \leq .01$). Couple ACEs was not correlated with either partner's report of partner care (r range = -.003 - -.01, p range = .87 - .94).

Testing Significant Improvements in Self-Care, Conflict Management, and Partner Care as Predictors of Later Improvements in Relationship Quality for Oneself and One's Partner

Self-Care

The dyadic path model testing whether immediate improvements in one's self-care predicted improvements one year after CRE enrollment in one's own and one's partner's relationship quality demonstrated excellent model fit (χ^2 = 27.61, df = 18, p = .7; RMSEA = .04, p = .79; CFI = .99; TLI = .98; SRMR = .05). Standardized and unstandardized model results are presented in Figure 1. One's significant improvements in self-care immediately after participating in a CRE program predicted greater improvements in one's own relationship quality one year after program enrollment (Partner 1 β = .13, p < .001; Partner 2 β = .15, p < .001). However, one's significant improvements in self-care immediately after participating in a CRE program did not significantly predict one's partner's improvements in relationship quality one year after program enrollment (Partner 1 β = .04, p = .34; Partner 2 β = .03, p = .34).

Conflict Management

The dyadic path model testing whether immediate improvements in one's conflict management predicted improvements one year after CRE enrollment in one's own and one's partner's relationship quality demonstrated acceptable model fit (χ^2 = 60.96, df = 18, p < .001; RMSEA = .08, p = .02; CFI = .94; TLI = .92; SRMR = .07). Standardized and unstandardized model results are presented in Figure 2. One's significant improvements in conflict management immediately after participating in a CRE program predicted greater improvements in one's own relationship quality one year after program enrollment (Partner 1 β = .15, p < .001; Partner 2 β = .17, p < .001). However, one's significant improvements in conflict management immediately after participating in a CRE program did not significantly predict one's partner's improvements in relationship quality one year after program enrollment (Partner 1 β = .04, p = .34; Partner 2 β = .03, p = .34).

Partner Care

The dyadic path model testing whether immediate improvements in one's partner care predicted improvements one year after CRE enrollment in one's own and one's partner's relationship quality demonstrated acceptable model fit (χ^2 = 59.26, df = 18, p < .001; RMSEA = .08, p = .03; CFI = .95; TLI = .93; SRMR = .07). Standardized and unstandardized model results are presented in Figure 3. One's significant improvements in partner care immediately after participating in a CRE program predicted greater improvements in one's own relationship quality one year after program enrollment (Partner 1 β = .10, p < .01; Partner 2 β = .11, p < .01). However, one's significant improvements in partner care immediately after participating in a CRE program did not significantly predict greater improvements in one's partner's relationship quality one year after program enrollment (Partner 1 β = .06, p = .14; Partner 2 β = .06, p = .14).

Testing Whether Cumulative Couple ACEs Moderate Couple Skills-Related Mechanisms of Change

Self-Care

The dyadic path model testing whether cumulative couple ACEs moderated the links between residual change scores from baseline to immediate post-program (i.e., immediate improvements) in self-care and improvements one year after CRE enrollment in one's own and one's partner's relationship quality demonstrated good model fit (χ^2 = 23.85, df = 9, p = .005; RMSEA = .06, p = .21; CFI = .96; TLI = .94; SRMR = .02). Cumulative couple ACEs did not moderate the link between one's immediate improvements in self-care and improvements in one's own relationship quality (Partner 1 β < .003, p = .96; Partner 2 β < .004, p = .97) or one's partner's relationship quality (Partner 1 β = -.05, Partner 2 β = -.05, p = .52) one year after program enrollment.

Conflict Management

The dyadic path model testing whether cumulative couple ACEs moderated the links between residual change scores from baseline to immediate post-program (i.e., immediate improvements) in conflict management and improvements one year after CRE enrollment in one's own and one's partner's relationship quality demonstrated good model fit (χ^2 = 21.84, df = 9, p = .009; RMSEA = .06, p = .28; CFI = .97; TLI = .95; SRMR = .02). Notably, cumulative couple ACEs moderated the link between one's immediate improvements in conflict management and one's own improvements in relationship quality one year after program enrollment (Partner 1 β = -.18, p = .03; Partner 2 β = -.20, p = .03).

Simple slopes for the link between immediate improvements in conflict management and improvements in relationship quality one year after program enrollment were tested for low (- 1 SD below the mean) and high (+ 1 SD above the mean) levels of cumulative couple ACEs. Both simple slopes models indicated a significant positive link between immediate improvements in conflict management and improvements in relationship quality one year after program enrollment. However, the link between immediate improvements in conflict management and greater improvements in one's own relationship quality one year after program enrollment was weaker for participants with more cumulative couple ACEs (Partner 1 β = -.18, p = .03; Partner 2 β = -.18, p = .03) than for participants with fewer couple ACEs (Partner 1 β = -.21, p = .03; Partner 2 β = -.21, p = .03). The interaction plot demonstrating the moderating nature of cumulative couple ACEs is presented in Figure 4. Cumulative couple ACEs did not moderate the link between one's immediate improvements in conflict management and one's partner's improvements in relationship quality one year after program enrollment (Partner 1 β = .16, p = .08; Partner 2 β = .14, p = .08).

Partner Care

The dyadic path model testing whether cumulative couple ACEs moderated the links between residual change scores from baseline to immediate post-program (i.e., immediate improvements) in partner care and improvements one year after CRE enrollment in one's own and one's partner's relationship quality and demonstrated adequate model fit (χ^2 = 26.00, df = 9, p = .002; RMSEA = .07, p = .15; CFI = .96; TLI = .94; SRMR = .02). Cumulative couple ACEs did not moderate the link between one's immediate improvements in partner care and improvements in one's own relationship quality (Partner 1 β = .01, p = .90; Partner 2 β = .01, p = .90) or one's partner's relationship quality (Partner 1 β = -.11, p = .33; Partner 2 β = -.09, p = .33) one year after program enrollment.

Discussion

CRE programs' success in promoting healthy couple relationships continues to be recognized by policy makers, as federal funds have been allocated to CRE efforts since 2006 (Hawkins et al., 2022). However, the need to explore more nuanced questions related to how CRE is successful within couples and diverse populations remains. This study builds from Adler-Baeder et al.'s (2022) findings that validated the foundational assumption of CRE, that improvements in a composite measure of couple relationship skills predict later improvements in relationship quality for the individual. Grounded in a prevention science framework (Coie et al., 1993) and interdependence theory (Kelley & Thibaut, 1978), this study provides more detailed and expanded information by considering independently each skill area addressed in the CRE program. Ours is also one of the few studies to incorporate a dyadic approach and to consider trauma histories as a couple.

We found that of the skill areas addressed in the curriculum and assessed (self-care, choose, know, share, care, conflict management, connect), it was self-care, care for partner, and

conflict management that improved the most immediately post-program, on average. We then found that immediate post-program improvements in self-care, conflict management, and partner care predicted improvements in one's own relationship quality one year after CRE program enrollment, but not change in one's partner's relationship quality. This suggests that self-care, conflict management, and partner care are three specific skills that may be driving the improvements in later relationship quality for an individual. Additionally, one's own efforts seem to be the most impactful for one's own reports of relationship quality in the current sample. This study also adds to the small body of research exploring the role of CRE participant ACEs on program outcomes by finding that for couples who report more ACEs, there is a comparatively weaker link between immediate improvements in one's conflict management and later improvements in one's own relationship quality, although positive links were still detected. Further discussion and implications of the study findings for research and practice are offered in the following sections.

Improvements in Conflict Management, Partner Care, and Self-Care Drive Improvements in Relationship Quality

Given some mixed findings regarding the impact of CRE programs (e.g., Wood et al., 2010), the need to understand mechanisms and patterns of change after CRE has long been recognized (Markman & Rhoades, 2012). The *National Extension Relationship and Marriage Education Model* (*NERMEM*) outlines seven core research-based concepts to address in relationship education (Futris & Adler-Baeder, 2013), thus providing a broader range of seven participant skills to assess as predictors of relationship quality change after CRE: self-care, choose, know, care, share, manage, and connect (Adler-Baeder, Futris, et al., 2022). A recent study validated the *NERMEM* assumption that improvements in these seven skills, assessed as a

composite measure, predicted later improvements in relationship quality (Adler-Baeder, McGill, et al., 2022). The current study is the first to disaggregate the skills and test individual skills' prospective links to later relationship quality. Assessing individual skills as mechanisms of change leads to information on which of the seven skills may be most salient for relational gains after CRE, especially for program designs based in *NERMEM,* such as the one tested in the current study.

We first used a novel data-driven approach to selecting which couple relationship skills we would test as predictors of later change in relationship quality. Studies exploring mechanisms of relationship quality change after CRE tend to use assumptions from basic relationship science to select potential prospective mediators. By first understanding in which couple skills participants reported the most change among the broad range of skills-training in the curriculum, and whether and how those reported changes are linked to longer-term outcomes, our approach is more informative for CRE programs based in the *NERMEM*. Our findings add to the support for the role of positive and negative communication in promoting relationship quality by prospectively documenting that conflict management skills and care for partner predicted longer-term improvements in relationship quality (Carlson et al., 2022; Le et al., 2020; Rauer et al., 2014). We also contribute novel findings regarding the role of self-care.

Based in assumptions from several decades of basic science highlighting the importance of communication skills such as conflict management for overall relationship satisfaction and well-being (e.g., Gottman et al., 1998; Karney & Bradbury, 1995), experts expect improvements in communication skills to drive improvements in overall relationship quality. According to the few studies that assess communication as a mechanism of relationship quality change after CRE, it is not empirically clear whether this is comparatively the most potent predictor of

improvements in relationship quality compared to other types of relational skills. Studies using observational coding systems to measure communication have found unexpected, mixed, or non-significant links between improvements in communication and improvements in self-reported relational well-being (Baucom et al., 2006; Schilling et al., 2003; Stanley et al., 2007, Williamson et al., 2016). On the other hand, support for communication-related mechanisms of change is consistent across studies that assess communication using self-report Likert-type survey measures (Barton et al., 2017; Hawkins et al., 2017; Le et al., 2020; Rauer et al., 2014; Roddy et al., 2020). This broad overview of existing studies provides some indication that reporter bias is likely at play that may include social desirability biases within self-report survey measures of communication and conflict management and relationship quality.

The current study's findings are consistent with other studies using self-report measures and found that immediate self-reported improvements in conflict management predicted later improvements in one's report of their relationship quality. Symbolic interactionism suggests that one will make meaning of events and circumstances based on one's own unique experiences, and that one's interpretation can be very different than others' (Blumer, 1969). It also assumes that perceptions are related to consequences. Thus, it makes sense that self-reported communication and conflict management, as compared to observer-coded, may be a better predictor of self-reported relationship quality.

Symbolic interactionism assumptions may also explain why, despite the expectation of partner influences, no partner influences were found for conflict management. One's own interpretation of their own experiences in conflict and conflict management behaviors may not be consistent with one's partner's perceptions. In other words, it may not be as evident to a partner that the other has improved in their relationship skills. Subsequently, they may not report

a related improvement in relationship quality. Based on these symbolic interactionist assumptions, including an assessment of partners' reports of one's couple relationship skills would improve our understanding of dyadic processes of change after CRE.

A related but distinct skill area also found to be driving improvements in an individual's report of their relationship quality was their improvements in other-oriented care for partner. The partner care behaviors assessed in the current study are related to the other-oriented positive interactions assessed by Rauer et al. (2014), who adapted Huston and Vangelisti's (1991) positive interactions scale. Consistent with Rauer et al.'s findings, the current study found that self-reported improvements in partner care behaviors (e.g., saying "I love you," showing physical affection, saying things you appreciate about partner) predicted later improvements in one's own relationship quality. Research shows that feeling and expressing gratitude is associated with both individual (Wood, Froh, et al., 2010) and relational well-being (Fincham & Beach, 2013).

Notably, we expected that individuals' increased partner care behaviors would also be linked to improvements in their partners' report of relationship quality since the caring behaviors are directed at the partner; however, this expectation was not supported. Similar to the case made for conflict management, symbolic interactionism may explain why no partner influence was detected. One may believe that they have improved in showing affection and appreciation more frequently after the program, but one's partner may not interpret the behavior as an increase in display of appreciation and affection. This immediate influence of one's own behavior change is substantial, as it still has a significant effect on that individual's assessment of their relationship quality almost one year later. Overall, our findings suggest that including practices in expressing gratitude for partners is warranted in CRE and overall affirm CRE efforts to boost

communication in times of stress (i.e., conflict management) as well as in times of appreciation (e.g., care). Additionally, partner reports of one's changes in skills may be more valuable in testing influences of one's skill improvements on their partner's reports of relationship functioning.

The current study's finding regarding the positive influence of self-care in one's own relational well-being is arguably the most novel contribution from RQ 1 findings to the study of mechanisms of relationship quality change after CRE. Researchers in basic and applied relationship science have long recognized the reciprocal link between individual and relational well-being (Bradford et al., 2014; Braithwaite & Holt-Lunstad, 2017; Cooper et al., 2021; Whisman & Baucom, 2012). In CRE research, concurrent and prospective links between improvements in individual mental health and relationship functioning have been documented (Bradford et al., 2014; Cooper et al., 2021). By improving self-care practices, individuals improve individual health and subjective well-being. These effects can spill over into individuals' relational health. This study adds to the literature on the links between mental and relational health in CRE participants by pointing to specific self-care behaviors related to individual functioning that can promote relational functioning.

Explanations for the prospective link between improvements in self-care practices and improvements in one's own relationship quality could be explained by improved mindfulness, self-awareness, emotion regulation, positive affect, and decreased stress (Brown & Ryan, 2003; Cross et al., 2018; Driver & Gottman, 2004; Karremans et al., 2017). Thus, the potential underlying, more detailed mechanisms of the link between improved self-care and later improvements in relationship quality are likely primarily internal, individual processes; however such internal processes of change after CRE are yet to be tested. This individual process may

also explain the lack of partner effects of immediate improvements in self-care on later improvements in the partner's report of relationship quality. Specific self-care items assessed in the current study include managing challenges, asking for help, recognizing strengths, managing stress, eating healthy meals, exercise, sleep, and quiet time for oneself. CRE participants' relational health, in addition to physical and mental health, would benefit from knowledge and skills practice related to these self-care behaviors.

The Role of Couple ACEs in Skills-Related Mechanisms of Change

Another significant novel contribution of this study involves the testing of the role of childhood adversity in mechanisms of change after CRE. The influence of cumulative ACEs for the individual's later health and well-being has been recognized since the seminal ACEs study (Felitti et al., 1998), and the systemic nature of traumatic stress within couples has been acknowledged by some scholars for decades (Nelson & Wampler, 2000; Nelson Goff & Smith, 2005). While there is some literature on relationship functioning in single- and dual-trauma couples (considering whether only one or both partners have experienced trauma) in clinical literature, the current study is the first to consider the cumulative effect of ACEs between both partners, or a "cumulative couple ACEs" measure. Recent reports on the rates of ACEs in federally funded CRE samples (Cooper et al., 2023a, Wheeler et al., 2021) also highlight the importance of combining trauma-informed and systemic approaches in the study of CRE, and this study is the first to do so.

Previous research on ACEs in CRE samples found that while more ACEs have been associated with lower relationship functioning at CRE program start (Cooper et al., 2023a; Cooper et al., 2023b; Wheeler et al., 2019), one's level of ACEs did not influence CRE program effects on relationship quality after CRE (Cooper et al., 2023b) suggesting that CRE positively

impacts relationship quality similarly for participants regardless of ACEs. Additionally, individuals' improvements in romantic self-efficacy were found to predict later improvements in relationship quality after CRE regardless of ACEs (Cooper et al., 2023b). There is some evidence that more ACEs may even be related to greater reductions in individual distress after relationship education for individuals, not couples, when those with the most and those with the least number of ACEs are compared (Wheeler, Griffith, et al., 2020). The current study generally finds that those with higher ACEs experience similar processes of change when considering change in self-care, conflict management, and partner care; however, it is the first to indicate that ACEs may weaken the link between a positive proximal outcome (i.e., conflict management) and a distal program outcome, relationship quality.

Considering the individual processes involved in conflict management (e.g., emotion regulation), it may be a particularly challenging skill area for couples who have experienced adversity. Although weak, correlations between baseline conflict management and cumulative couple ACEs as well as residual change scores for conflict management and cumulative couple ACEs in the current sample may support this assumption. Post-hoc bivariate correlations suggest that more cumulative couple ACEs are linked to less improvement in conflict management (as indicated by residual change scores) for Partner 2 (r = -.11, p = .04), and a similar pattern is trending for Partner 1 (r = -.10, p = .06). Thus, the link between changes in conflict management and later changes in relationship quality may be due to comparatively less change in conflict management for couples with more ACEs.

We can also look to related literature for consideration of micro-processes that may be at play for individuals and couples with more ACEs and that can be considered in future studies. Adversity and trauma in childhood can disrupt healthy nervous system development and lead to

hyperactive threat perceptions and stress responses which can make self-regulation and emotion regulation challenging for individuals (Leitch, 2017; Porges, 2011). Individual challenges in self- and emotion regulation are critical elements of couple processes in conflict management, emotional and physical intimacy, and others (Nelson Goff & Smith, 2005). Early reflections on trauma within clinic couples suggest these processes are even more challenging for dual-trauma couples (Balcom, 1996). Our findings support the general idea that higher total ACEs between partners may present some risks to conflict management skill development and it is likely that emotion-regulation and self-regulation skills are factors involved.

Practical Implications

The current findings validate practical applications of basic science that inform potential modifiable traits linked with relationship functioning such as *NERMEM* and the *ELEVATE* program built on this model. By assessing individual couple relationship skills emphasized in the *NERMEM* and the *ELEVATE* curriculum, instead of a composite measure of the skills, we were able to underscore the distinct value of teaching conflict management, partner care, and self-care in CRE programs. Because conflict management, partner care, and self-care improved the most in the current sample compared to the other couple relationship skills assessed and drive later improvements in relationship quality, they may be some of the most crucial content elements in CRE based in *NERMEM*. Improving conflict management and communication processes among couples has been a long-held priority of CRE programs (Halford et al., 2003; Stanley et al., 2020). The current findings validate the assumptions that improving conflict management promotes relationship quality after CRE. Importantly, conflict management is shown to be comparatively the most malleable of the skills addressed. Complementing John Gottman's early work that first implied the importance of reducing negative interactions during conflict and

improving positive interactions (Gottman et al., 1998), increasing actions demonstrating care for partner is also critical. We encourage curriculum developers and CRE program staff and facilitators to continue prioritizing conflict management and other-oriented care for partner.

Our novel finding regarding self-care highlights the importance of including self-care information and skills practice in CRE. Curriculum developers and program staff may consider program goals related to improving individuals' ability to manage challenges, asking for help, recognizing strengths, managing stress, eating healthy meals, exercise, sleep, and quiet time for oneself. Both curricula used in the current study, *ELEVATE* (Futris & Adler-Baeder, 2014) and *Couples Connection Mindfully* (McGill et al., 2016) include an emphasis on self-care. One module is dedicated to self-care in *ELEVATE,* and the foundation of *Couples Connecting Mindfully* is mindfulness-based stress management for the individual and partners as a couple. The current study validates these efforts in CRE focused on self-care.

Our findings also suggest that the link between conflict management and relationship quality after CRE is weaker for couples with more ACEs due to comparatively less change in conflict management for those with higher cumulative couple ACEs. A starting place for CRE practitioners to address this could include additional conflict management assessments for couples or populations who report more ACEs and acknowledgement that this area may be challenging for couples with more ACEs. According to pre-program assessments of conflict management, practitioners could also consider allocating more time to content and skills practice related to individual and couple processes that influence conflict management in populations with greater ACEs, including an emphasis on emotion regulation. Psychoeducation on trauma and its effects, physiological stress responses, and emotions as well as mindfulness practices, somatic awareness practices, grounding techniques, and cognitive reappraisal could be integrated

for such populations (Leitch, 2017; Nelson Goff & Smith, 2005; Van der Kolk, 2014). This information and these skills can lead to enhanced self-awareness, emotion identification, and emotion regulation. These are key individual skills underlying conflict management that may be especially important for individuals with more ACEs (Leitch, 2017; Nelson Goff & Smith, 2005).

Limitations

The current study has many strengths including its large, racially and ethnically diverse community-based sample of couples, the use of longitudinal and dyadic data, and its data-driven approach in selecting mechanisms of relationship quality change to test. There are also limitations to consider. The current study used self-report measures which may introduce measurement bias. Additionally, ACE items may be subject to recall bias, as we assess adversity before age 18, and our sample ranges from 19 to 90 years of age (Median = 36). This study also did not distinguish between the influence of one's own level of ACEs versus the influence of their partner's level of ACEs. While assessing ACEs at the couple level is valuable and was a novel feature of the study, it may also be valuable to examine actor and partner influences of ACEs on relationship functioning before and after CRE. Also, the ACEs Scale used in the current study only captured child maltreatment and household experiences of adversity. Recent literature on ACEs recognizes the impact of community-level ACEs such as neighborhood violence, discrimination, and bullying, and those items are not assessed in the current study. Lastly, while the current study made a conscious effort to be inclusive of same-gender couples in its analytical sample, the number of same-gender couples was still small (n = 8 couples). Thus, implications and conclusions from the current cannot be generalized to sexual and gender minority (SGM) populations.

Future Directions and Conclusions

Using a prevention science approach (Coie et al., 1993) and assumptions from interdependence theory (Kelley & Thibaut, 1978), we validated efforts to prioritize content related to conflict management, partner care, and self-care in CRE programs. Improvements in these skill areas were the greatest and predicted improvements in one's own relationship quality one year after enrolling in CRE. We did not find evidence for partner effects of immediate improvements in conflict management, partner care, or self-care, indicating that in the current sample, only individuals' own improvements are driving later improvements in their relationship quality. Additionally, this study is the first to find that more ACEs may weaken the prospective associations between changes in conflict management and relationship quality. Notably, gender was not assessed in the current study. CRE could influence—or CRE outcomes could be influenced by—patterns to which heterosexual couples default due to gender socialization. As such, future assessments in heterosexual samples may explore dyadic processes of change and consider the role of gender. Observational studies in heterosexual couples testing communication as a mechanism of change after CRE suggest that there may be gender differences in how changes in communication influences later relationship quality. While this study was intentional in being inclusive of same-gender couples, other studies may examine this process in heterosexual couples. The mechanisms of change validated in the current study should also be tested in samples with greater proportions of SGM participants, as this study's small number of same-gender couples does not allow us to generalize the current findings to SGM couples.

We encourage future research that explores partner effects at later time points after CRE. As individuals have more time to practice and improve skills learned in CRE, these individual

improvements may have more time to take effect between partners (i.e., one's partner may notice and be influenced by one's skill improvements more as time goes on). It also would be valuable to include partners' reports of skills rather than just self-report.

We encourage CRE scholars to continue exploring the role of ACEs for CRE participants before and after programming. Intentionally taking a trauma-informed approach to the study and practice of CRE will serve to strengthen its impact, especially in diverse and underserved populations. Dyadic and couple-level adversity and resiliency should also continue to be explored, as this study and others demonstrate the systemic and interdependent influence of adversity and trauma and the protective value of resiliency factors. Person-centered approaches exploring adversity and resiliency profiles among couples could particularly deepen our understanding of the variability and diversity among populations with ACEs, as well as inform prevention and intervention efforts.

Future studies should also explore other skills and potential resiliency factors that may promote relationship quality for couples with greater ACEs. It could be that focusing on other skills and resiliency factors such as emotion regulation and stress management may be more effective for populations with greater ACEs. It would also be worth exploring how changes in couple relationship skills influence each other. For example, improvements in self-care may enable later changes in conflict management, as individual emotional well-being, assumed to be improved through self-care practices (Futris & Adler-Baeder, 2013), is linked to dyadic processes such as conflict management (Bloch et al., 2014; Nelson Goff & Smtih, 2005). Continuing to test complex longitudinal processes of change models and considering risks such as ACEs will inform best practices in CRE for economically diverse and marginalized populations.

Table 1. Descriptive statistics for all Study 1 variables.

						Skewness		Kurtosis	
	N	**Min.**	**Max.**	**Mean**	**SD**	**Stat**	**SE**	**Stat**	**SE**
T1 RQ	366	11.00	67.00	53.95	11.20	-1.12	0.13	1.21	0.25
	366	**13.00**	**67.00**	**54.24**	**10.58**	**-1.05**	**0.13**	**0.78**	**0.25**
T1 Self-Care	366	13.00	56.00	35.89	7.02	0.05	0.13	0.20	0.25
	366	**11.00**	**56.00**	**36.43**	**7.43**	**-0.25**	**0.13**	**0.20**	**0.25**
T1 Choose	366	5.05	28.00	22.95	3.66	-0.72	0.13	1.18	0.25
	366	**8.85**	**28.00**	**23.10**	**3.67**	**-0.54**	**0.13**	**-0.03**	**0.25**
T1 Know	366	9.00	28.00	22.33	3.69	-0.42	0.13	0.05	0.25
	366	**4.00**	**28.00**	**22.56**	**3.97**	**-0.71**	**0.13**	**0.96**	**0.25**
T1 Share	366	3.00	21.00	14.66	4.18	-0.46	0.13	-0.35	0.25
	366	**3.00**	**21.00**	**14.62**	**4.04**	**-0.41**	**0.13**	**-0.16**	**0.25**
T1 Care	366	4.00	28.00	21.48	5.23	-0.85	0.13	0.12	0.25
	366	**4.00**	**28.00**	**21.92**	**5.10**	**-0.92**	**0.13**	**0.42**	**0.25**
T1 Manage	366	10.00	35.00	23.71	4.91	-0.09	0.13	-0.32	0.25
	366	**7.00**	**35.00**	**24.17**	**5.01**	**0.07**	**0.13**	**-0.25**	**0.25**
T1 Connect	366	4.00	28.00	21.40	4.67	-0.84	0.13	1.20	0.25
	366	**4.00**	**28.00**	**21.80**	**4.47**	**-0.90**	**0.13**	**1.18**	**0.25**
T2 Self-Care	366	14.00	56.00	38.03	7.13	-0.05	0.13	0.28	0.25
	366	**10.00**	**56.00**	**38.64**	**7.06**	**-0.25**	**0.13**	**0.37**	**0.25**
T2 Choose	366	7.00	28.00	23.48	3.66	-0.58	0.13	0.31	0.25
	366	**5.00**	**28.00**	**23.68**	**3.82**	**-0.91**	**0.13**	**1.36**	**0.25**
T2 Know	366	10.55	28.00	22.97	3.55	-0.21	0.13	-0.47	0.25
	366	**4.00**	**28.00**	**23.35**	**3.77**	**-1.10**	**0.13**	**3.36**	**0.25**
T2 Share	366	3.00	21.00	15.64	3.53	-0.47	0.13	0.13	0.25
	366	**3.00**	**21.00**	**15.62**	**3.77**	**-0.58**	**0.13**	**0.13**	**0.25**
T2 Care	366	4.00	28.00	23.08	4.70	-1.21	0.13	1.55	0.25
	366	**4.00**	**28.00**	**23.08**	**4.72**	**-1.22**	**0.13**	**1.49**	**0.25**
T2 Manage	366	15.00	35.00	25.48	4.66	0.17	0.13	-0.38	0.25
	366	**10.00**	**35.00**	**25.80**	**4.44**	**-0.03**	**0.13**	**-0.04**	**0.25**
T2 Connect	366	4.00	28.00	22.07	4.04	-0.54	0.13	0.56	0.25
	366	**4.00**	**28.00**	**22.32**	**4.30**	**-1.06**	**0.13**	**2.56**	**0.25**
T4 RQ	366	10.55	67.00	54.50	10.78	-1.01	0.13	0.68	0.25
	366	**10.00**	**67.00**	**56.14**	**10.06**	**-1.28**	**0.13**	**1.71**	**0.25**
Couple ACEs	409	0.00	15.00	3.09	2.90	1.11	0.12	1.12	0.24

Note. Partner 1 results are in regular font, and Partner 2 results are in bolded font.

Table 2. Results of *t*-tests demonstrating significant improvements in relationship quality and couple relationship skills.

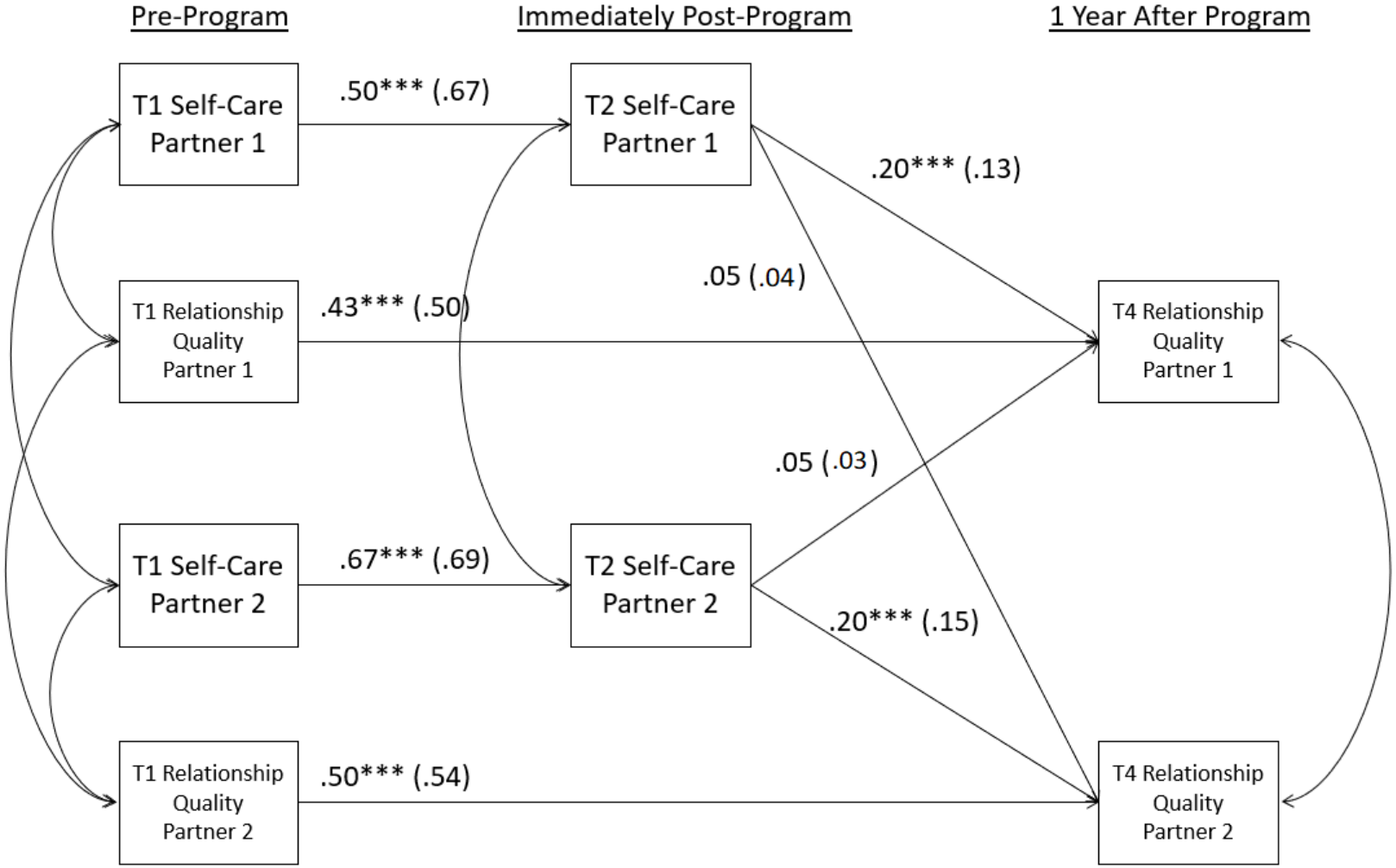
	N	**T1 *M***	***SD***	**T2 *M***	***SD***	***t***	**df**	***p***	**Cohen's *d***
Relationship Quality	366	53.95	11.23	55.24	10.26	-2.95	4573	.003	-.16
	366	**54.24**	**10.58**	**56.23**	**10.45**	**-4.66**	**5885**	**< .001**	**-.25**
Self-Care	366	35.89	7.02	38.03	7.13	-7.13	2398	< .001	-0.39
	366	**36.43**	**7.43**	**38.64**	**7.06**	**-7.14**	**13721**	**< .001**	**-0.38**
Choose	366	22.95	3.66	23.48	3.66	-2.92	5826	0.003	-0.16
	366	**23.10**	**3.67**	**23.68**	**3.82**	**-3.40**	**3094**	**< .001**	**-0.18**
Know	366	22.33	3.69	22.97	3.55	-3.44	2060	< .001	-0.19
	366	**22.56**	**3.97**	**23.35**	**3.77**	**-3.98**	**8147**	**< .001**	**-0.21**
Share	366	14.66	4.18	15.64	3.53	-5.14	3071	< .001	-0.28
	366	**14.62**	**4.04**	**15.62**	**3.77**	**-5.47**	**6707**	**< .001**	**-0.29**
Care	366	21.48	5.23	23.08	4.70	-7.60	4948	< .001	-0.41
	366	**21.92**	**5.10**	**23.08**	**4.72**	**-5.80**	**15526**	**< .001**	**-0.31**
Manage	366	23.71	4.91	25.48	4.66	-8.30	16195	< .001	-0.44
	366	**24.17**	**5.01**	**25.80**	**4.44**	**-7.68**	**11363**	**< .001**	**-0.41**
Connect	366	21.40	4.67	22.07	4.04	-3.24	38187	0.001	-0.17
	366	**21.80**	**4.47**	**22.32**	**4.30**	**-2.81**	**2244**	**0.005**	**-0.15**

Note. Partner 1 results are in regular font, and Partner 2 results are in bolded font.

Table 3. Bivariate correlations at baseline among variables used in Study 1 primary analyses

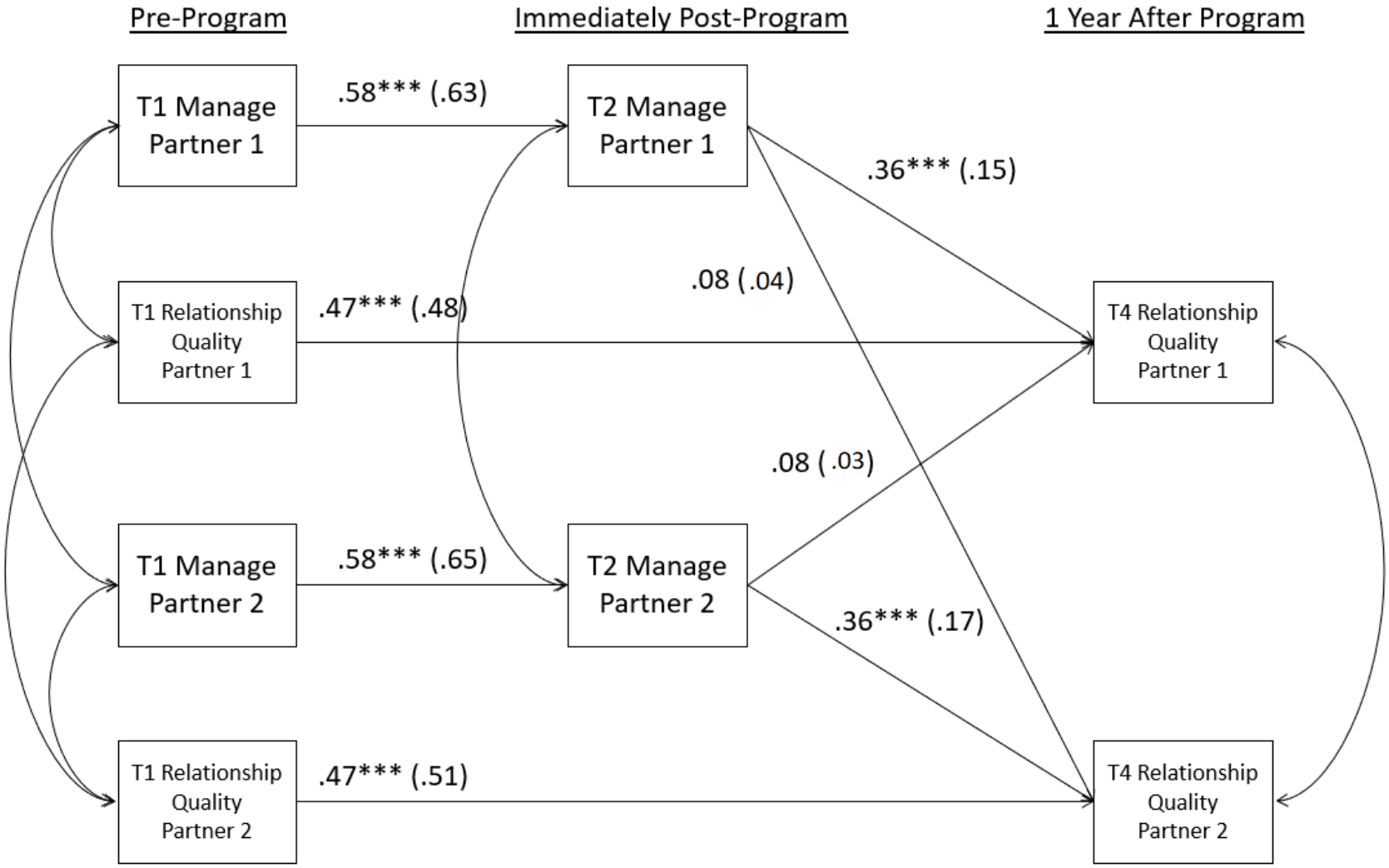
	T1RQ Partner 1	**T1RQ Partner 2**	**T1Self-Care Partner 1**	**T1Self-Care Partner 2**	**T1 Manage Partner 1**	**T1 Manage Partner 2**	**T1 Care Partner 1**	**T1 Care Partner 2**	**Couple ACEs**
T1 RQ Partner 1	1								
T1 RQ Partner 2	.60***	1							
T1Self-Care Partner 1	.40***	.36***	1						
T1Self-Care Partner 2	.37***	.43***	.43***	1					
T1 Manage Partner 1	.46***	.40***	.52***	.30***	1				
T1 Manage Partner 2	.34***	.48***	.27***	.39***	.34***	1			
T1 Care Partner 1	.54***	.39***	.35***	.19***	.37***	.26***	1		
T1 Care Partner 2	.39***	.43***	.20***	.30***	.26***	.33***	.59***	1	
Couple ACEs	-.19***	-.20***	-.28***	-.18***	-.16**	-.17**	-.01	-.003	1

Figure 1. Dyadic prospective associations among immediate improvements in self-care and later improvements in relationship quality



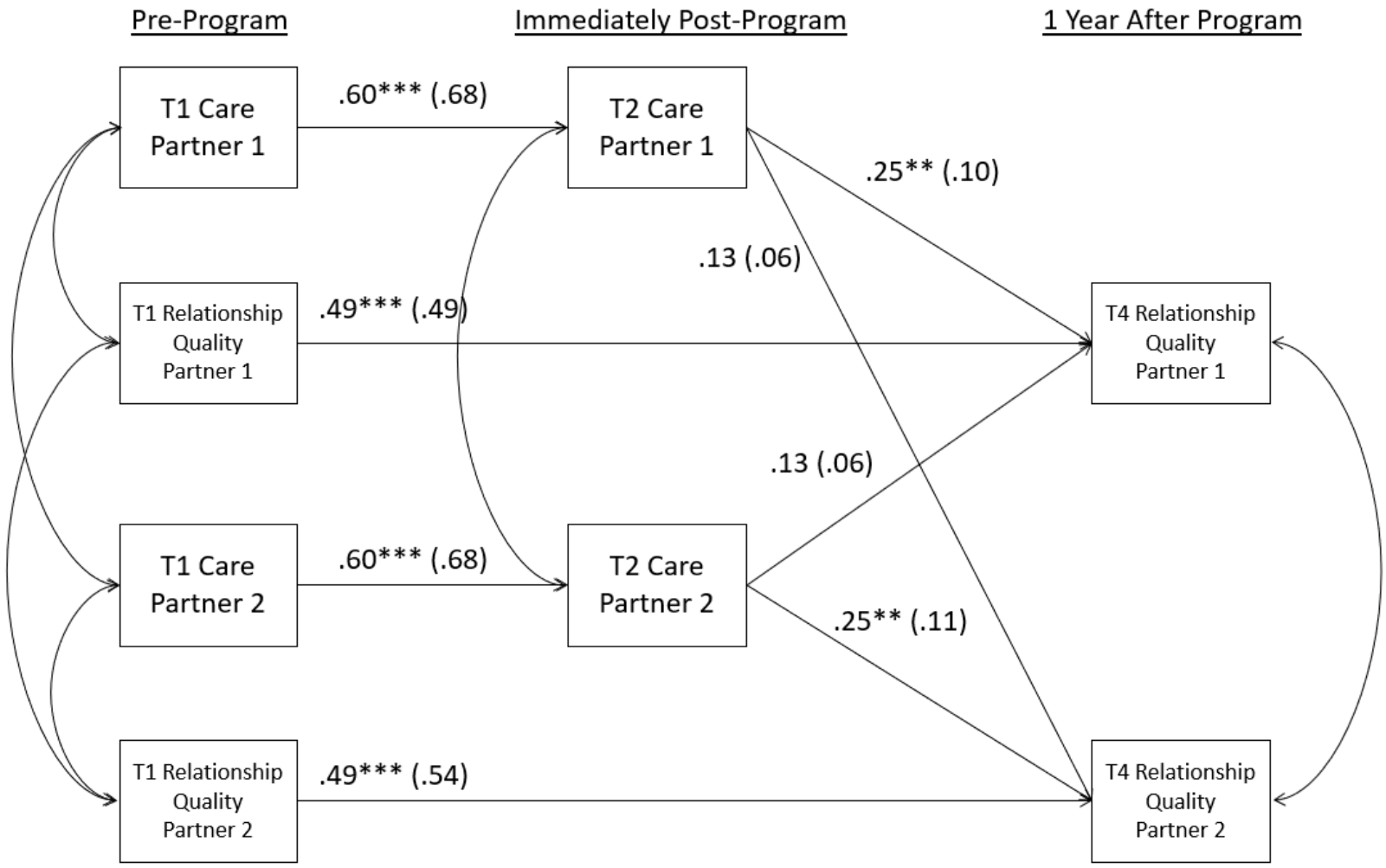
Note. Unstandardized beta coefficients are presented with standardized coefficients in parantheses. ***$p < .001$, **$p < .01$, *$p < .05$, $^{\dagger}p < .10$

Figure 2. Dyadic prospective associations among immediate improvements in conflict management and later improvements in relationship quality



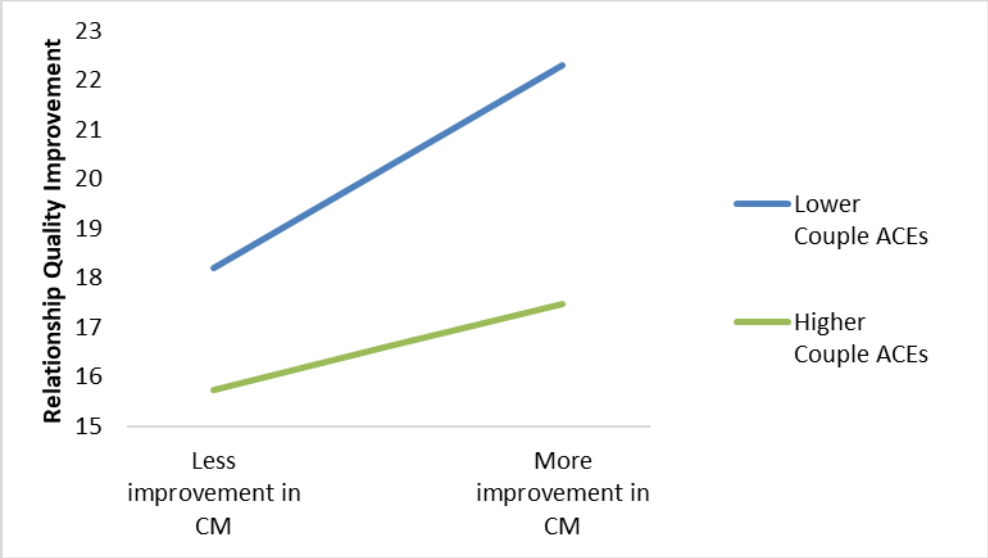
Note. Unstandardized beta coefficients are presented with standardized coefficients in parantheses. ***$p < .001$, **$p < .01$, *$p < .05$, $^{\dagger}p < .10$

Figure 3. Dyadic prospective associations among immediate improvements in partner care and later improvements in relationship quality



Note. Unstandardized beta coefficients are presented with standardized coefficients in parantheses. ***$p < .001$, **$p < .01$, *$p < .05$, $^{\dagger}p < .10$

Figure 4. The moderating effect of Couple ACEs on the link between one's immediate improvements in conflict management on improvements in their own relationship quality one year after program enrollment



III. Study 2 – ACE Dimensions, Couple-focused Mindfulness, and Romantic Self-efficacy: Latent Profiles of Risk & Resilience

Decades of research have documented the robust association between adverse childhood experiences (ACEs) and negative physical health and mental health outcomes (Felitti et al., 1998; Hughes et al., 2017). Although many scholars acknowledge the interconnectedness of physical, mental, and relational well-being, the body of research exploring the cumulative influence of early adversity on couple relationships in adulthood is scarce. Individual early adverse experiences, such as child maltreatment, parental divorce, witnessing domestic violence, and their later effects on relationship functioning and stability have been explored extensively, and negative associations are well-documented (e.g., Amato 2010; Cao et al., 2022; Costa et al., 2015; Zamir, 2022). For example, a review of 43 studies concluded that a history of child maltreatment including physical abuse and neglect, emotional abuse and neglect, and sexual abuse were associated with lower relationship quality in men and women (Zamir, 2022). Additionally, a review of the literature on divorce from the early 2000s highlighted that parental divorce was associated with more relationship problems and relationship dissolution (Amato, 2010).

Most of the assessments of the number of ACEs link to adult relationships focus on later violence victimization and perpetration (e.g., Bellis et al., 2014; Miller et al., 2011; Whitfield et al., 2003). Meta-analytic results from nine studies demonstrate that interpersonal violence victimization and perpetration (including that of intimate partner violence) is positively linked to number of ACEs (Hughes et al., 2017).The eight studies that have specifically explored the link between cumulative adverse experiences measured by the ACEs scale (Anda et al., 2009; Felitti et al., 1998) and negative but less serious couple relationship outcomes documented that higher levels of ACEs are negatively associated with relationship functioning such as relationship

quality (Andersson et al., 2021; Cooper et al., 2023a; Cooper et al., 2023b; Khalifian et al., 2022; Peterson et al., 2022; Wheeler et al., 2019; Wheeler et al., 2020; Wheeler et al., 2021).

While the ACEs framework has shed needed light on the cumulative effects of ACEs, it was designed as a screening index measure which limits the interpretation of findings in the study of couple relationships. With only a cumulative count of ACEs we have no information on how different ACEs may differentially impact later functioning. In the study of relationships, it is also noteworthy that studies have not considered the combined couple ACEs experiences and their meaningfulness for adult relationships. The current study will address these gaps by exploring typologies, or profiles, of couple ACEs and related individual and relational characteristics. Efforts to use a dimensional approach, as compared to a simple additive index of an individual's ACEs, may reveal more nuance related to the mechanisms by which ACEs are associated with later relational functioning (McLaughlin & Sheridan, 2016; Miller et al., 2018).

The widespread awareness of trauma that can be credited to the ACEs framework and seminal ACEs study (Felitti et al., 1998) raised needed awareness of the implications of ACEs. However, the framework also led to a heavy emphasis on the study of negative outcomes without also giving adequate attention to resilience after adversity (Leitch, 2017). Understanding the more complex patterns among ACEs, resiliency factors, and adult functioning is important for revealing skills and characteristics that may be associated with healthy adaptation after experiencing adversity and that can be strengthened through intervention. Two resiliency factors that are often a focus in trauma therapy and have been found in empirical studies to have a stronger link with relationship functioning than number of ACEs are mindfulness and self-efficacy (Benight & Bandura 2004; Cooper et al., 2023b; Hopwood & Schutte, 2017). These are characteristics that individuals and couples can develop that could be protective against potential negative effects of childhood adversity. Importantly, self-efficacy and mindfulness are both traits

that can be enhanced through community-based prevention programs for couples, such as couple relationship education (CRE), and may then lead to improved relational health despite ACEs (Cooper et al., 2023b).

Further, while individual mindfulness has long been applied to relational contexts (Burrows, 2011; Kabat-Zinn & Kabat-Zinn, 1998), the concept of couple-focused mindfulness has more recently been defined in the mindfulness literature (Karremans et al., 2017; McGill et al., 2022). Couple-focused mindfulness is the "intentional awareness and observation of one's own thoughts and emotions in interactions with one's partner approached with patience, openness, nonjudgement, and compassion" (p. 2300, McGill et al., 2022). Despite the link between ACEs, relationship functioning, and the protective role of general individual mindfulness, no study has assessed couple-focused mindfulness as a resiliency factor in the context of ACEs.

Thus, the current study, will take a risk and resilience approach and determine distinct profiles of risk (as indicated by types and number of ACEs experienced by each partner) and resiliency (as indicated by couple-focused mindfulness and romantic self-efficacy levels) among couples enrolled in CRE at program start. Further, this study will assess differences in demographic characteristics, as well as individual and couple functioning among risk and resiliency profiles. Identifying more distinct types of couple profiles of risk related to ACEs will serve to inform future explorations of CRE program effectiveness for diverse populations.

Theoretical Framework

Prevention science is an interdisciplinary approach at the intersection of human science research and practice, as its main goal is to prevent major human dysfunction (Coie et a., 1993). Prevention science emphasizes the study of antecedents of negative outcomes (risk factors) and characteristics or circumstances that work to moderate such risks (protective factors). Taking

assumptions from resilience theory (Masten, 2001; Masten & Cincchetti, 2016), a prevention science approach recognizes that individuals who face adversity have the potential to adapt and develop skills, traits, and resources that are protective against negative outcomes related to adversity. As such, prevention science emphasizes the role of prevention and intervention programs that aim to prevent risk factors and promote protective factors to support healthy development. The field of prevention science highlights that prevention and intervention programs should be based in basic research of risk and protective factors. Applied research on such programs is then crucial to provide continued insight on ways to attenuate risk and promote resilience.

The current study utilized a sample from community-based couple relationship education, a preventative approach to promoting healthy relationships. We expect that partners in prevention programs for couples influence one another before, during, and after CRE, and this expectation is based on interdependence theory (Kelley & Thibaut, 1978; Wickham & Knee, 2012). Specifically, we expect that each partner's level of risk and resilience would influence the other partner's relational and couple functioning as well as their relationship overall.

In the proposed study, we also took a dimensional approach to studying adversity by considering conceptually two types of adversity. While much of the research on ACEs and childhood adversity takes an overall cumulative risk approach (Rutter, 1979; Appleyard et al., 2005) by assessing the link between the *number of adverse experiences* and health outcomes, understanding the unique influence of *distinct dimensions of adversity* may help uncover mechanisms linking ACEs and later health (McLaughlin & Sheridan, 2016; Miller et al., 2018). McLaughlin & Sheridan (2016) introduced the two-dimensional conceptualization of early adverse experiences that may influence development and functioning differentially: deprivation and threat. Deprivation refers to adversity in which expected inputs or supports that are

necessary for healthy development are absent. Threat, on the other hand, refers to adversity that involves violence or harm, or threat of violence or harm. While the application of this dimensional approach is growing in the study of effects of ACEs in adult functioning (e.g., Clark et al., 2023; Hawkins et al., 2021; Lin et al., 2022), no previous work in the study of relationships has applied these concepts to categorize the experiences assessed on the ACEs scale.

ACEs and Adult Functioning

For the past two decades, research support has been accumulating on the potential negative health outcomes in adults who report adverse childhood experiences (ACEs; Hughes et al., 2017). ACEs are experiences of abuse, neglect, or other household or community challenges in childhood that are harmful, distressing, and often chronic and traumatizing (Felitti et al., 1998; Kalmakis & Chandler, 2014; Wade et al., 2016). The seminal CDC study introducing the ACEs framework (Felitti et al., 1998) was the first to highlight that traumatic events in childhood and stressful home environments increase the risk of negative health outcomes in adulthood, including many chronic diseases, infectious diseases, injuries such as fractures and traumatic brain injuries, and poorer mental health. This study introduced the ACE Scale, an index of 10 childhood events, that allowed practitioners in the medical field to briefly assess for such social determinants of health.

The ACE Scale and framework is now widely used by practitioners and researchers across many medical and social science disciplines, and in the two decades since the CDC study was first published, the link between having more ACEs and lower health and well-being is a robust finding (Anda et al., 2009; CDC, 2020; Hughes et al., 2017). For example, higher numbers of ACEs are associated with poor health behaviors such as smoking, excessive alcohol use, risky sexual behaviors, and physical inactivity (Hughes et al., 2017). Additionally, more

ACEs are linked to higher risk for longer-term health outcomes such as heart diseases, respiratory diseases, liver diseases, cancer, diabetes, and even earlier death (Hughes et al., 2017; Brown et al., 2009). Higher levels of ACEs are also associated with depression, anxiety, low life satisfaction, and suicidality, and these elements of mental health and distress are also likely contributors to poorer physical health (Danese & McEwen, 2012; Hughes et al., 2017; O'Conner et al., 2021).

Another factor related to ACEs, mental well-being, and physical health is relational health (Umberson & Karas Montes, 2010; Wheeler et al., 2019). While the influence of early childhood experiences on later relational functioning has long been of interest (e.g., Hunter, 1991; Whisman, 2006), it is only recently that relationship scholars have been exploring the cumulative effects of ACEs on relational functioning among individuals and couples. Number of cumulative ACEs has been linked to lower relationship quality as well as higher relationship distress (Wheeler et al., 2019; Wheeler et al., 2020). Further, the five studies of the dyadic influence of cumulative ACEs on relationship functioning demonstrated ACEs' negative association with an individual's own relationship functioning, as well as their partner's (Andersson et al., 2021; Cooper et al., 2023a; Khalifian et al., 2022; Peterson et al., 2022; Wheeler et al., 2021).

Importantly, not all demographic groups are at the same risk for ACEs. The original ACEs study was completed with a mostly white and middle-class sample (Felitti et al., 1998). More recent reports from more racially and economically diverse samples demonstrate that respondents who are Black or Hispanic, queer, and those who have fewer economic resources report more ACEs, on average, than others (Child Trends, 2019; Conger et al., 2010; Gill & Page, 2006; Merrick et al., 2018; Zielinski, 2009). Consistent with these studies, recent and more diverse samples of relationship education participants report more ACEs proportionally

compared to those reported in the original study. While the original study (Felitti et al., 1998) found that about 52% of respondents in their study reported at least one ACE, recent reports suggest that up to 76% of relationship education participants report at least one ACE. Additionally, up to 30% report four or more ACEs (Cooper et al., 2023a; Wheeler et al., 2019) compared to 6% in the original study (Felitti et al., 1998).

Efforts have been advanced more recently to expand the conceptualization of ACEs to include community-level adversity including neighborhood violence and discrimination that occur in lower resourced and racially marginalized communities (Wade et al., 2016). Community-level ACEs, referred to here as extrafamilial ACEs, include witnessing violence in the community, felt discrimination, feeling like the neighborhood was unsafe, bullying, and ever living in foster care (Cronholm et al., 2015; Wade et al., 2016). Findings from studies assessing extrafamilial ACEs demonstrate that community-level ACEs are more likely to occur among communities of color and among those in poverty (Cronholm et al., 2015). Like the original intrafamilial-focused ACEs, having more extrafamilial ACEs has been linked to poorer health behaviors and outcomes including substance abuse, sexually transmitted infections, and clinical depression (Lee et al., 2023; Wade et al., 2016). The concept of extrafamilial ACEs has advanced the study of ACEs among diverse populations, but there is still much left to learn. Specifically, no study has used this expanded ACE assessment including extrafamilial ACEs in exploring the link between ACEs and relational outcomes. Further, extrafamilial ACEs have not been examined among relationship education participants.

Additionally, no study exploring the effects of ACEs on relational functioning has used a dimensional approach (Sheridan & McLaughlin, 2014). A dimensional approach in the study of ACEs allows for more nuanced tests of the effects of ACEs. It appears that both threat and deprivation ACEs are positively linked to increased risks of suicide attempts, psychiatric

diagnoses, and substance use/dependence diagnoses (Lin et al., 2022; Sosnowski et al., 2022). However, higher economic status was found to be protective against depression among adults who had deprivation ACEs, but not threat ACEs (Lin et al., 2022). This suggests that there are likely both similarities and distinctions in the underlying mechanisms linking deprivation and threat ACEs to adult outcomes, depending on the outcome and the context. A dimensional approach in the study of ACEs' effects on relational outcomes may reveal such nuance in the link between ACEs and relational functioning. It is likely that experiences of threat early in life have different implications for relationship functioning later in life than early experiences of deprivation. Such findings would provide further insight to specific skills that can be emphasized in prevention and intervention programs among groups who experience ACEs.

Resiliency Factors

As a counter to the deficit approach to research on risk factors and outcomes, resiliency expectations suggest the attenuation of risk in the presence of protective factors. While early research on resilience aimed to understand resilience as a distinct trait, theorists more recently suggest that resilience is not a single trait that individuals either possess or lack, but resilience is one's ability to adapt in the context of adversity and chronic stress (Masten & Cincchetti, 2016). As such, resilience is dynamic and consists of many psychological, neurobiological, and contextual traits and processes. Characteristics and processes associated with resilience include emotional support and security, meaning-making, self-regulation, and positive family relationships and friendships, (Masten & Cincchetti, 2016).

Two characteristics that have been linked to ACEs both as potential negative outcomes and as possible resiliency factors are self-efficacy and mindfulness (Benight & Bandura 2004; Whitaker et al., 2014). Traumatic experiences such as ACEs can negatively influence one's sense of predictability and control in life, and this can negatively impact one's sense of self-efficacy

(i.e., the concept of one's functional effectiveness in any given context; Bandura, 1997). Individuals with trauma histories can also resort to experiential avoidance as a way of coping with trauma's negative effects, which is in opposition to principles of mindfulness (Follette et al., 2004; Follette et al., 2006). Mindfulness is defined as nonjudgmental awareness and acceptance of one's inner experience at any given moment (Bishop et al., 2004; Kabat-Zinn, 2003) and this may be especially challenging post-trauma and adverse experiences (Follette et al., 2004; Follette et al., 2006).

While those with more ACEs may, on average, have lower levels of mindfulness and self-efficacy, it also true that those with more ACEs can have or can develop higher levels of mindfulness and self-efficacy and that this combination can result in better individual well-being (e.g., Hopwood & Schutte, 2017; Masten & Cincchetti, 2016; Whitaker et al., 2014). Self-efficacy has been associated with resilience and post-traumatic growth, and individuals who have more self-efficacy have a greater sense of agency and respond to adversity with persistence (Benight & Bandura 2004; Masten & Cincchetti, 2016). Additionally, meta-analytic results from 18 studies utilizing 21 different samples demonstrate the effectiveness of mindfulness interventions in treating symptoms of post-traumatic stress such as emotional distress, intrusive memories, and avoidance (Follette et al., 2006; Hopwood & Schutte, 2017). The protective nature of mindfulness in the face of traumatic stress has been attributed to its focus on awareness of internal and external experiences in the present moment, instead of events of the past, and its principles of acceptance and nonjudgment of one's experiences (Follette et al., 2006).

Self-efficacy and mindfulness are ideal resilience factors to explore in a profile analysis with ACEs, because they are both negatively linked to trauma, however when higher levels after trauma are retained or attained, this indicates post-traumatic growth. While they may be similar in this way, they are distinct concepts that can differentially inform prevention efforts.

Importantly, while ACEs are past events that place people at risk for negative outcomes and cannot be changed, self-efficacy and mindfulness are characteristics that can be enhanced through skills training and practice. Considering modifiable resiliency factors in risk and resiliency profiles is most helpful in prevention science as we seek to minimize negative outcomes, even when risks cannot be reduced (as in the case of ACEs that have already occurred).

Important in relationship science and the study of couples, self-efficacy and mindfulness are also linked to relationship functioning. Romantic self-efficacy, which is a sense of agency in the specific domain of couple relationships, has been linked to greater relationship satisfaction and relationship commitment (Riggio et al., 2013), and may be a prominent domain of self-efficacy for individuals in couple relationships who experienced ACEs. A recent study explored the comparative strength of the links between romantic self-efficacy and ACEs within CRE participants and found that romantic-self efficacy had the more robust association with relationship quality compared to ACEs (Cooper et al., 2023b). Further, a robust link between mindfulness and relational health has also been documented. Meta-analytic findings from 28 studies (McGill et al., 2016; Quinn-Nilas, 2020) demonstrate a significant link between greater trait mindfulness and higher relationship quality. Although this is a new area of research, explanations for this link suggest that more mindful individuals tend to have better self-regulation, better self-other connectedness, more pro-relationship behaviors, and use more positive attributions (Adair et al., 2018; Kappen et al., 2018; Karremans et al., 2017).

Two recent studies examining links among ACEs, mindfulness, and relationship quality in CRE participants found a stronger association between individual mindfulness and relationship quality than ACEs and relationship quality before a CRE program (Cooper et al., 2023a; Cooper et al., 2023b). One of these studies (Cooper et al., 2023a) is the only known

dyadic assessment of ACEs, mindfulness, and relational health and found that while having more ACEs was associated with lower relationship quality for men and women, higher levels of individual mindfulness were more strongly linked to higher relationship quality for men and women. Additionally, men's ACEs were negatively linked to their partners' relationship quality; however, men's and women's mindfulness was more strongly and positively linked to their partners' reports of relationship quality compared to ACEs.

These assessments of mindfulness in the studies of couples all included measures of individual, more general, mindfulness. Recently, an effort to assess relational mindfulness (i.e., mindful practices within the context of relationships) is growing (e.g., Bently et al., 2019; Burrows, 2011; Kabat-Zinn & Kabat-Zinn, 1998). Relevant to the current study, a valid measure of couple-focused mindfulness has been developed (McGill, et al., 2022). In the measurement development study, an 8-factor couple-focused mindfulness construct was affirmed and importantly, was a more potent predictor of relationship quality compared to a measure of individual mindfulness.

The Current Study

Based on the extant empirical background and rooted in prevention science principles, this study took a risk and resilience approach and incorporated theoretical assumptions from interdependence theory and a dimensional approach to childhood adversity. This study also took a person-centered approach and explored dyadic profiles of risk and resiliency factors using data collected at CRE program enrollment. This study also examined whether there were differences among risk and resiliency profiles in demographic characteristics and concurrent individual and relational functioning before a CRE program. Specifically, the following research questions were addressed:

Research Question 1 (RQ1): Are there distinct risk and resiliency couple profiles among CRE participants at program enrollment, as indicated by each partner's dimensions of ACEs (deprivation ACEs, threat ACEs), couple-focused mindfulness, & individual romantic self-efficacy?

Research Question 2 (RQ2): How do demographics such as race, relationship type (same gender/different gender), income, relationship length, relationship status, parental status, as well as relationship quality, relationship instability, and psychological distress differ according to risk and resiliency profiles?

Methods

Procedures

The data for this study were taken from a larger multi-site CRE study conducted in a southeastern state. Couples were recruited into a study comparing the effectiveness of weekly and monthly implementation models of the CRE program *ELEVATE: Taking Your Relationship to the Next Level* (Futris et al., 2014). Recruitment occurred through word of mouth, social media, fliers, and other media advertisements at five community agencies. To be enrolled, both partners had to be at least 19 years old, enroll as a couple, and be able to attend all class sessions. Once participants were enrolled into the study, they completed a baseline survey assessing demographic characteristics as well as many areas of individual, couple, and family functioning. Participants were compensated $40 for completing the survey.

Participants

Couples assigned to both implementation models were utilized in the current study, as only baseline data were used for analyses. However, participants must have completed all items on the ACEs questionnaire on the baseline survey to be included since these data were not imputed if items responses are missing. The total study sample was 921 couples (1604

individuals). An individual's partner was not required to complete the survey for the individual to be included in the sample, thus 238 (15%) individuals did not have a partner in the analytic sample. The sample was comprised of 54% (*n* = 865) women, 46% men (n = 730), and less than 1% (7 individuals) are non-binary or genderqueer. Ages in the sample ranged from 19 to 77, and the average age was 36.26 (*SD* = 10.53). Sixty-four percent of the current sample was married, while 31% were in a committed relationship or engaged. Four percent report that they were casually dating. One percent consider themselves in a committed relationship and eligible for the study, but reported they were currently separated. Ninety-five percent were in a different-gender relationship, 4% were in a same-gender relationship, and 1% report another relationship type. The sample was racially and economically diverse—47% percent of the current sample were African American or Black, 45% were Caucasian or white, and 8% reported another race or ethnicity. Fifteen percent reported an annual household income of less than $20,000 per year, 20% reported $20,000-$40,000, 26% reported $40,000-$75,000, 17% reported $75,000-$100,000, and 22% reported earning over $100,000 per year.

Measures

Childhood Adversity

Childhood Adversity was assessed using the Adverse Childhood Experiences Scale from the Philadelphia ACEs Study (Wade et al., 2016). This scale assesses nine intrafamilial ACEs that were originally assessed in the seminal CDC ACE study ("conventional ACEs"; Felitti et al., 1998), and six items that assess community-level, or extrafamilial, ACEs ("expanded ACEs"; Wade et al., 2016). In the current study, individual ACEs items were categorized based on the definitions of threat and deprivation provided by Miller et al. (2018). Threat ACEs included the seven items referencing experiences of emotional abuse, physical abuse, sexual abuse, witness domestic violence, witnessed community violence, being bullied, and racial discrimination.

Deprivation ACEs included the seven items referencing experiences of emotional neglect, physical neglect, parental addiction, parental mental health problems, parental incarceration, lack of support in their neighborhood, and being in foster care. See Appendix A for ACE items according to dimension. Number of deprivation (Range = 1-7) and threat (Range = 1-7) ACEs were summed separately to reflect cumulative risk of each ACE dimension.

Couple-Focused Mindfulness

Each individual's level of couple-focused mindfulness was measured using the Mindfulness in Couple Relationships Scale (McGill et al., 2022). This newly-developed scale consists of 31 items and measures eight domains of couple-focused mindfulness: non-judgement, patience, a beginner's mind, trust, non-striving, acceptance, letting go, and noticing self and partner. An example item includes, "I am aware when I am feeling negative towards my partner." See full list of items in Appendix B. The overall scale demonstrated good reliability in the current sample (α = .94), and has been validated with confirmatory factor analysis (McGill et al., 2022). All item responses across the subscales were averaged to obtain an overall measure of couple-focused mindfulness for each partner.

Romantic Self-efficacy

Romantic self-efficacy (RSE) was measured using the mean of six items from the Self-Efficacy in Romantic Relationships Scale (Riggio et al., 2013). Items range from one to seven, and the items assed the degree to which relationships felt difficult or challenging or the degree to which individuals were insecure about their ability to be a good partner. An example item is, "Romantic relationships are very difficult for me to deal with." All items were reverse coded. This scale demonstrated good reliability in the current sample (α = .89). Average scale scores were used in the analyses.

Relationship Quality

Relationship quality was measured using a composite sum of items from the Quality of Marriage Index (Norton, 1983), Couple Satisfaction Index (Funk & Rogge, 2007), and a measure of commitment (Stanley & Markman, 1992). Three items from Quality of Marriage Index (QMI), four items from the Couple Satisfaction Index (CSI), and three items assessing commitment were used. All QMI and commitment items range from one to seven. One item on the CSI ranges from one to seven, while the other three range from one to six. The ten items demonstrated excellent internal consistency as indicated by a Cronbach's alpha (α = .96). Higher scores indicated greater relationship quality.

Relationship Instability

Relationship instability was measured using an adapted version of Booth et al.'s (1983) measure of marital instability. The assessment consists of four items that assess whether the respondent and their partner have ever thought their relationship might be in trouble and whether either has ever considered separation/divorce. Higher scores reflect greater instability. The scale demonstrated good reliability in the current sample as indicated by Cronbach's alpha (α = .85). Sum scores were used for analyses.

Psychological Distress

Psychological distress was measured using the 10-item Kessler Psychological Distress Scale ("K10"; Kessler & Mroczek, 1994). This scale assesses the frequency of non-specific symptoms of psychological distress in the past 30 days such as, "felt tired out for no good reason" and "felt so nervous that nothing could calm you down." Responses are on a scale from one ("none of the time") to five ("all of the time"). Validity of the K10 have been established in previous samples (Andrews & Slade, 2001), and Cronbach's alpha indicated excellent reliability

in the current sample (α = .91). A sum score of the K10 items will be used, and higher scores will indicate greater distress.

Analytic Plan

Preliminary Analyses

Across all measures in the current sample the rate of random item missingness was below 1%. Trace item non-response was addressed with multiple imputation. Before addressing the Research Questions, missing data for all variables except for demographic characteristics and the ACEs assessment were imputed using the "mice" package in r (Azur et al., 2011; van Buuren & Groothuis-Oudshoorn, 2011). The resulting imputed values were then used for analyses, and results were pooled across 10 imputed datasets. Before the data were restructured into dyadic data by couples, partners of each couple were randomly assigned "partner 1" or "partner 2" status so that couple dyads were indistinguishable. Although couples are typically distinguished by gender or sex, this approach allowed for same-gender couples and gender diverse participants to be retained in the sample. Descriptive statistics including skewness and kurtosis statistics were examined to ensure all continuous variables met criteria for a normal distribution. Additionally, the prevalence of total ACEs and ACE dimensions were explored by examining data frequencies.

Primary Analyses

To test Research Question 1, exploring risk and resiliency profiles of couples, a dyadic latent profile analysis using each partner's threat ACE number, deprivation ACE number, couple-focused mindfulness levels, and RSE as indicators of the latent profiles (8 indicators) was conducted. Full-information maximum likelihood (FIML) was used to address missing partner data for individuals whose partners did not complete the survey. To determine the number of appropriate amount of profiles, relative model fit indices (Akaike Information Criteria, Bayesian Information Criteria, and Sample-size Adjusted Bayesian Information Criteria) were compared

between 1- through 7-class solution models. Entropy, bootstrapped Likelihood Ratio Test (BLRT) and Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR-LRT), and this study's theoretical lens were also considered when choosing the appropriate number of profiles. Before testing Research Question 2, how demographics such as partners' race, relationship type, income, relationship length, relationship status, parental status, and relationship quality, relationship instability, and psychological distress are distributed across the risk and resiliency profiles, the profiles in which couples were most likely to be were saved as a categorical variable. Descriptive statistics and ANOVAs were then utilized to test for profile differences in relationship length and household income as well as baseline relationship quality, relationship stability, and psychological distress. Chi-square tests were utilized to test differences between profiles in categorical demographic variables (race, relationship type, relationship status, and parental status). Because SPSS does not pool results from multiple imputed datasets in ANOVAs or chi-square tests, results were pooled across imputations by taking the mean of result statistics and using F-statistic and chi-square tables to determine significance level.

Results

Preliminary Results

No differences were detected between partners assigned as partner 1 and those assigned as partner 2 in weekly/monthly random assignment (χ^2 = .65, df = 1, p = .42), gender (χ^2 = .42, df = 2, p = .81), race/ethnicity (χ^2 = .65, df = 6, p = 1.00), relationship status (χ^2 = 4.32, df = 4, p = .37), income (χ^2 = 1.49, df = 4, p = .83), age (t = -.33, df = 1590, p = .74), or whether they were in a same- or different-gender relationship (χ^2 = 4.08, df = 2, p = .13). This validates the partner status random assignment procedure.

Eighty-two percent of the sample reported at least one of the 14 total ACEs assessed, and 40% report four or more of all ACEs assessed. Seventy-three percent of the current sample

reported at least one of the seven threat ACEs, and 25% reported four or more threat ACEs. Additionally, 61% reported at least one of the seven deprivation ACEs, and 11% reported four or more deprivation ACEs. Descriptive statistics for all study variables are presented in Table 4. Skewness and Kurtosis statistics were assessed, and all study variables meet the criteria for a normal distribution (Byrne, 2010; George & Mallery, 2010; Hair et al., 2010). Skewness ranged from -.76 to 1.27. Kurtosis ranged from -.76 to 1.13. Bivariate correlations were computed for all study variables to preliminarily assess relationships among them (see Table 5).

Latent Profile Analysis Results

LPA models were specified for one to seven profiles. See Table 6 for model fit statistics comparisons across solutions. Relative model fit indices and entropy suggested that the five- or six-class solutions were the best-fitting solutions. The AIC, BIC and SABIC values continued to decrease substantially until the five-profile solution, and the six-profile solution had the highest entropy value. Taking this study's theoretical approach into account when examining the indicator means across profiles in addition to the higher entropy value, the six-profile solution was selected as the best solution. The six risk and resiliency couple profiles were labeled as *Low Couple ACEs and Resilient* (40%, *n* = 365), *Low Couple ACEs but Challenged* (27%, *n* = 251), *High/Low ACEs and Resilient* (12%, *n* = 109), *Incongruent: High/Low ACEs, Challenged/Resilient*, (8%, *n* = 75), *High Couple ACEs but Resilient* (7%, *n* = 62), and *High Couple ACEs and Challenged* (6%, *n* = 59). See Figure 5 for a visual comparison of partners' levels of threat and deprivation ACEs, couple-focused mindfulness, and romantic self-efficacy across profiles.

Risk and Resiliency Couple Profile Descriptions

See Table 7 for descriptives of each group. The largest risk and resiliency profile was the *Low Couple ACEs and Resilient* profile (40%, *n* = 365). In this profile, both partners reported

below average threat and deprivation ACEs, above average levels of couple-focused mindfulness, and above average RSE. This group was racially balanced: forty-seven percent of this sample was African American/Black, 46% were European American/white, and 7% were of another race/ethnicity. This group reported mostly low-middle income: the average annual household income was between $40,000 and $70,000 (*M* = 3.18, *SD* = 1.38). The majority (67%) were married, 29% were in a committed relationship or engaged, 3% were casually dating, and 1% reported that they are in a relationship, but currently separated. The average length of relationships in this profile was 11.04 years (*SD* = 12.28). This profile included 96% individuals in different-gender relationships, 4% were in same-gender relationships or another kind of relationship. The majority were parents (71%).

In the *Low Couple ACEs but Challenged* couple risk and resiliency profile (27%, *n* = 251), both partners reported below average threat and deprivation ACEs, but also below average levels of couple-focused mindfulness, and below average RSE compared to other profiles. This class was also racially balanced: 47% European American/white individuals, 46% African American/Black individuals, and 7% members of another race/ethnicity. Members of this class were still mostly low-middle income: the average annual household income was between $40,000 and $70,000 (*M* = 3.28, *SD* = 1.33). The majority of this group (68%) were married couples, while 26% were in committed relationships or engaged, 3% were casually dating and 1% reported that they were in a relationship but currently separated. This class had been together an average of 13.32 years (*SD* = 13.38). Ninety-four percent were in different-gender relationships, while 6% were in same-gender relationships or another kind of relationship. The majority of this profile (84%) were parents, and 16% were not parents.

In the *High/Low ACEs and Resilient* profile (12%, *n* = 109), one partner reported above average levels of threat and deprivation ACEs, the other partner reported below average threat

and deprivation ACEs, both partners reported average levels of couple-focused mindfulness on average, and average levels of RSE. This profile is also racially balanced: 48% were African American/Black, 44% were European American/white individuals, and 8% individuals of another race/ethnicity. The average annual household income was low—between $20,000 and $40,000 on average (*M* = 2.89, *SD* = 1.25). The majority (63%) were married, 34% were in committed relationships or engaged, 2% were in a relationship but currently separated, and 1% were casually dating. The average length of relationships in this profile was 11.44 years (*SD* = 15.52). Ninety-five percent of individuals in this profile were in different-gender relationships, and 5% were in same-gender relationships or another kind of relationship. The majority of this profile (75%) are parents, and 25% were not parents.

In the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (8%, *n* = 75), one partner reported a higher than average level of threat and deprivation ACEs, and the other reported a lower than average level of threat and deprivation ACEs. The partners in the *Incongruent* profile were also unmatched in their level of resilience. The partner with higher ACEs reported below average levels of couple-focused mindfulness and RSE, while the partner with fewer ACEs reported above average levels of couple-focused mindfulness and average levels of RSE. This profile is racially balanced, including 46% European American/white individuals, 45% African American/Black individuals, and 9% individuals of another race/ethnicity. The average annual household income in this group was low: between $20,000 and $40,000 (*M* = 2.75, *SD* = 1.22). Half of this profile (51%) were married; the other half were nonmarried: 43% were in a committed relationship or engaged, and 5% were casually dating, and 1% reported that they were in a relationship but currently separated. The average length of relationships in this profile 8.48 years (*SD* = 10.66). Couples in this profile were also mostly

different-gender (90%), while 10% were same-gender relationships or another kind of relationship. The majority (78%) of this profile are parents, while 22% are not parents.

In the *High Couple ACEs but Resilient* profile (7%, *n* = 62), both partners reported above average threat and deprivation ACEs as well as above average levels of couple-focused mindfulness and RSE. This sample included a majority (51%) of African American/Black individuals, 42% European American/white individuals, and 7% individuals of another race/ethnicity. The average annual household income was low—between $20,000 and $40,000 (*M* = 2.75, *SD* = 1.12). A slight majority of this profile (59%) were married, 34% were in a committed relationship or engaged, 4% were casually dating, and 3% were in a relationship but currently separated. The average length of relationships in this profile was 9.96 years (*SD* = 13.70). The majority (93%) were in a different-gender relationship, and 7% were in same-gender relationships or another kind of relationship. The majority of this profile (78%) are parents, while 22% are not parents.

The smallest group was the *High Couple ACEs and Challenged* profile (6%, *n* = 59). In this group, both partners reported above average threat and deprivation ACEs and below average couple-focused mindfulness and RSE. This profile included half (50%) African American/Black individuals, 43% European American/white individuals, and 7% individuals of another race/ethnicity. This profile reported low average annual household income, which was between $20,000 and $40,000 (*M* = 2.62, *SD* = 1.12). The majority of this profile (94%) were in different-gender relationships, while 6% were in same-gender relationships or another kind of relationship. The majority of this profile (60%) were married, 33% were in a committed relationship or engaged, 6% were casually dating, and 3% were in a relationship but currently separated. The average length of relationships in this profile was 9.34 years (*SD* = 12.89). This profile also had a majority (79%) of parents and 21% individuals who are not parents.

Testing Differences between Risk and Resiliency Couple Profiles

Due to no significant differences between partner 1s and partner 2s in demographic variables, results for only partner 1s are reported for categorical variables. For continuous variables, partners' reports were averaged to obtain a couple-level measure to test for differences between the couple profiles. Among demographic variables, significant differences were detected between risk and resiliency couple profiles for relationship status (χ^2 = 33.58, df = 20, p < .05), relationship length (F(5, 893) = 2.77, p = .02), income (F(5, 909)= 5.68, p < .001), race (χ^2 = 49.15, df = 30, p < .05), and parent status (χ^2 = 12.07, df = 5, p = .05). There were no differences detected for relationship type (same/different gender) among the profiles (χ^2 = 16.81, df = 10, p = .09). Among individual and relational functioning measures, significant differences were detected between risk and resiliency couple profiles for relationship quality (F(5, 915) = 68.75, p < .001), relationship instability (F(5, 803) = 31.39, p < .001), and psychological distress (F(5, 803) = 26.88, p < .001). Proportion and mean comparisons across profiles can be found in Table 7. In order to describe each individual profile as clearly as possible, the following explanations of significant profile differences are presented twice (once per profile in a significant result).

Low Couple ACEs and Resilient

Crosstabs results indicated that the *Low Couple ACEs and Resilient* profile had higher proportions of married couples and fewer parents compared to other profiles. Further, post-hoc independent samples *t*-tests demonstrated that the *Low Couple ACEs and Resilient* profile reported significantly higher incomes on average than the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (t = 2.64, df = 636, p < .01) and the *High Couple ACEs and Challenged* profile (t = 2.38, df = 48, p = .02).

Additionally, this profile reported significantly higher relationship quality compared to three of the six profiles: *Low Couple ACEs but Challenged* (t = -14.81, df = 64, p < .01), *Incongruent: High/Low ACEs, Challenged/ Resilient* (t = 2.64, df = 636, p < .01), and *High Couple ACEs and Challenged* (t = 4.84, df = 11, p < .004). This profile also reported lower relationship instability than four of the six other profiles: *Low Couple ACEs but Challenged* (t = 8.11, df = 64, p < .01), *High/Low ACEs and Resilient* (t = -4.29, df = 19, p < .001), *High Couple ACEs but Resilient* (t = -2.23, df = 10, p = .05), *High Couple ACEs and Challenged* (t = -6.10, df = 23, p < .001). This profile also reported significantly lower psychological distress than all of the five other profiles: *Low Couple ACEs but Challenged* (t = 8.31, df = 95, p < .001), *High/Low ACEs and Resilient* (t = -3.60, df = 12, p < .01), *Incongruent: High/Low ACEs, Challenged/Resilient* (t = -5.61, df = 19, p < .001), *High Couple ACEs but Resilient* (t = -2.42, df = 10, p = .04), *High Couple ACEs and Challenged* (t = -5.19, df = 12, p < .001).

Low Couple ACEs but Challenged

Based on crosstabs results, the *Low Couple ACEs but Challenged* profile reported higher proportions of married couples and parents compared to other profiles. Post-hoc independent samples *t*-tests demonstrated that the *Low Couple ACEs but Challenged* profile reported higher incomes than the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (t = 3.21, df = 305, p < .01) and the *High Couple ACEs and Challenged* profile (t = 2.91, df = 54, p < .01). This profile reported longer relationship, on average, compared to the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (t = 2.94, df = 178, p < .01).

This profile reported lower relationship quality than three of the five other profiles: *Low Couple ACEs and Resilient* (t = -14.81, df = 64, p < .01), *High/Low ACEs and Resilient* (t = -2.27, df = 11, p < .05), *Incongruent: High/Low ACEs, Challenged/Resilient* (t = -3.65, df = 14, p < .01). This profile also reported greater relationship instability than the *Low Couple ACEs and*

Resilient profile (t = 8.11, df = 64, p < .01) and the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (t = 3.02, df = 19, p < .01). Lastly, this profile reported higher psychological distress compared to the *Low Couple ACEs and Resilient* (t = 8.31, df = 95, p < .001) and lower psychological distress compared to the *High Couple ACEs and Challenged* (t = -2.47, df = 13, p = .03).

High/Low ACEs and Resilient

In comparison to other groups, the *High/Low ACEs and Resilient* profile reported higher relationship quality than one profile, *Low Couple ACEs but Challenged* (t = -2.27, df = 11, p < .05). This profile also reported higher instability compared to the *Low Couple ACEs and Resilient* profile (t = -4.29, df = 19, p < .001), and lower relationship instability than the *High Couple ACEs and Challenged* profile (t = -2.30, df = 28, p = .03).

Incongruent: High/Low ACEs, Challenged/Resilient

The *Incongruent: High/Low ACEs, Challenged/Resilient* had fewer married couples compared to other profiles according to crosstabs results. Further, post-hoc independent samples *t*-tests indicated that the *Incongruent: High/Low ACEs, Challenged/Resilient* profile reported significantly lower income than one profile, the *Low Couple ACEs and Resilient* profile (t = 2.64, df = 636, p < .01). This profile also reported lower relationship quality (t = 2.64, df = 636, p < .01) than the *Low Couple ACEs and Resilient* and greater relationship quality (t = 2.58, df = 13, p = .02) than the *High Couple ACEs and Challenged* profile. This profile reported lower relationship instability (t = -4.01, df = 25, p < .001) and more psychological distress (t = -5.61, df = 19, p < .001) than one profile, the *High Couple ACEs and Challenged* profile.

High Couple ACEs but Resilient

Based on crosstabs results, the *High Couple ACEs but Resilient* profile had significantly greater proportions of African American/Black individuals compared to other profiles. In

addition, post-hoc independent samples t-tests indicated that this profile reported greater relationship instability (t = -2.23, df = 10, p = .05) and more psychological distress (t = -2.42, df = 10, p = .04) compared to the *Low Couple ACEs and Resilient* profile.

High Couple ACEs and Challenged

According to post-hoc independent samples t-tests, the *High Couple ACEs and Challenged* profile reported significantly lower incomes than the *Low Couple ACEs and Resilient* profile (t = 2.38, df = 48, p = .02) and the *Low Couple ACEs but Challenged* profile (t = 2.91, df = 54, p < .01). Additionally, this profile reported significantly lower relationship quality than the *Low Couple ACEs and Resilient* profile (t = 4.84, df = 11, p < .004) and the *Incongruent: High/Low ACEs, Challenged/Resilient* profile (t = 2.58, df = 13, p = .02). The *High Couple ACEs and Challenged* profile also reported significantly greater relationship instability than three of the five other profiles: the *Low Couple ACEs and Resilient* (t = -6.10, df = 23, p < .001), *High/Low ACEs and Resilient* (t = -2.30, df = 28, p = .03), and *Incongruent: High/Low ACEs, Challenged/Resilient* (t = -4.01, df = 25, p < .001). Lastly, this profile reported significantly greater psychological distress than the *Low Couple ACEs and Resilient* profile (t = -5.19, df = 12, p < .001) and the *Low Couple ACEs but Challenged* profile (t = -2.47, df = 13, p = .03).

Looking across these results, the *Low Couple ACEs and Resilient* profile is overall the highest functioning profile in terms of relationship quality, relationship instability, and psychological distress. The lowest functioning profiles are *Low Couple ACEs but Challenged* and *High Couple ACEs and Challenged*. The following groups do not differ from each other in relationship and individual functioning and are ranked between *Low Couple ACEs and Resilient* (highest functioning) and the two lowest ranking profiles: *High/Low ACEs and Resilient*,

Incongruent: High/Low ACEs, Challenged/Resilient, and *High Couple ACEs but Resilient*. These can be considered having average overall functioning.

Discussion

As CRE becomes more accessible to increasingly diverse populations, identifying types of participants that CRE is serving is a necessary step towards understanding for whom and how CRE works best. Although federal funding agencies have strengthened efforts to offer CRE in lower resourced and marginalized communities—communities in which ACEs occur at higher rates (Merrick et al., 2018)—ACEs and related resiliency factors have not been widely studied in CRE samples. The current study contains several elements that are novel in the study of ACEs and relationship functioning, including assessment of dimensions of adversity and the exploration of latent couple profiles. The current study uncovered important elements of diversity and nuance related to ACEs and resiliency factors (couple-focused mindfulness and RSE) within couples that enrolled in CRE.

Six latent risk and resiliency couple profiles were revealed in the current sample. Notably, none of the latent profiles consisted of the majority of the sample, and this highlights the diversity within CRE couples. Some profiles were expected based on existing findings about ACEs and relational functioning, such as the *Low Couple ACEs and Resilient* (40%, n = 365) and the *High Couple ACEs and Challenged* (6%, n = 59) profile. We also found some unexpected latent profiles, including the *Low Couple ACE but Challenged* (27%, n = 251) and *High Couple ACEs but Resilient* (7%, n = 62) profiles. We also found two groups that reported mixed within-couple risk and resiliency: *High/Low ACEs and Resilient* (12%, n = 109) and *Incongruent: High/Low ACEs Challenged/Resilient* (8%, n = 75). These latter four groups validate the complexity of ACEs and trajectories of risk and resilience for individuals and couples. Exploring differences among the profiles in demographics and concurrent functioning

further deepens our understanding of what type of diversity to expect among couples who enroll in CRE and how the combination of partners' risk and resiliency factors relate to relational and individual functioning before a CRE program. These profiles and their distinctions also offer practical implications for those working with diverse populations of couples.

Explaining Latent Profiles and their Differences

Although no latent profile was the majority of the current sample, the largest proportion (40%) belonged to the *Low Couple ACEs and Resilient* profile. Couples in this profile shared experiences of below average levels of early adverse experiences, and they were mindful and felt efficacious in their relationships, on average. This profile tended to have higher incomes, more married couples (68%), and were least likely to have children (although 72% were parents). Unsurprisingly, this profile was also the highest functioning profile in terms of relationship quality, relationship instability, and psychological distress. This profile was expected as the current sample is a community-based (non-clinical) sample electing to receive a universal, preventive CRE program. The higher functioning of this profile could be due in part to overall lower levels of stress on the individual and couple relationship. Couples in this profile were less likely to be dealing with chronic stress due to higher ACEs and situational stress due to fewer resources and parenting challenges (Falconier & Jackson, 2020; Nelson et al., 2014; Nelson Goff & Smith, 2005), and as such, reported better couple relationship and individual functioning. It is also likely that their shared experience of lower ACEs and higher resiliency factors further enhanced individual and couple functioning since greater congruence in positive histories can be beneficial to couple relationships (Jamison & Lo, 2021; Xia et al., 2018).

On the other hand, there was also an expected but small proportion of the sample (6%) who belonged to the *High Couple ACEs and Challenged* profile. Couples in this profile shared high levels of early adversity and were challenged with below average levels of couple-focused

mindfulness and RSE. This profile tended to have lower income and was one of the two lowest-functioning profiles in terms of relationship quality, relationship instability, and psychological distress. This profile represents the inverse of the *Low Couple ACEs and Resilient* profile, as high levels of chronic stress between both partners and situational stress due to fewer economic resources may have a large impact on these couples. Because socioeconomic status in adulthood is linked to socioeconomic status in childhood, it may also be that individuals in this profile are from backgrounds characterized by fewer resources. Stress due to lack of resources may be not only situational but also chronic for individuals in this profile. Cumulative chronic stress related to lack of resources and ACEs influence individual well-being and often spillover into their couple relationship functioning (Santiago et al., 2011; Shonkoff et al., 2012; Falconier & Jackson, 2020). Having shared experiences of above average ACEs may make developing resiliency factors and high individual and couple relationship functioning doubly challenging for some couples, such as those in the *High Couple ACEs and Challenged* profile. This is evidenced by clinical literature on dual-trauma couples. Dual trauma couples have reported challenges related to expressing vulnerability and communicating emotions clearly, mistrust, lack of motivation for individual growth (Braughton et al., 2021).

However, our findings also highlight that for some couples, high couple ACEs do not ensure lower resiliency or functioning as we may expect based on previous findings (Wheeler et al., 2020; Wheeler et al., 2021; Cooper et el., 2023b). By taking a risk and resilience approach in the current study, we were able to document that even couples who jointly report higher levels of ACEs can also be resilient and successful. The 62 couples in the *High Couple ACEs but Resilient* profile shared experiences of high couple ACEs and also reported above average couple-focused mindfulness and RSE. Couples in this profile were most likely to be African American/Black and only differed in functioning from the highest functioning profile, *Low Couple ACEs and*

Resilient, suggesting that they report moderate functioning, similarly to some couples who have fewer couple ACEs. What may be an important distinction between this profile and the *High Couple ACEs and Challenged* profile is that both partners in the *High Couple ACEs but Resilient* profile reported lower levels of deprivation ACEs compared to partners in the *High Couple ACEs and Challenged* profile. From clinical literature there are suggestions of distinct underlying mechanisms between threat and deprivation ACEs. Individuals with deprivation ACEs can face challenges distinguishing between and communicating emotions (McLaughlin et al., 2020). Such challenges linked with deprivation ACEs may make developing couple-focused mindfulness and RSE more arduous. On the other hand, those with experiences of threat ACEs can develop higher threat bias and heightened emotional reactivity (McLaughlin et al., 2020). As such, individuals with more threat ACEs may have more awareness, especially of threats to their relationship. Such awareness could be channeled positively to couple communication that promotes RSE.

The *High Couple ACEs but Resilient* profile's higher functioning compared to the other profile with high couple ACEs could be due to greater post-traumatic growth among individuals and couples in this profile compared to *High Couple ACEs and Challenged*. Although post-hoc analyses did not demonstrate significant differences between the profiles with high couple ACEs in having previously participated in therapy or relationship education, post-traumatic growth can occur without such services. Post-traumatic growth is when individuals experience improvements in psychological functioning after adversity (Linley & Joseph, 2004). Post-traumatic growth can occur through acceptance, positive interpretations of experiences, and optimism (Tedeschi & Calhoun, 2004). Supports such as therapy, social support, and positive relationships also contribute to post-traumatic growth (Sanki & O'Connor, 2021; Tedeschi & Calhoun, 2004). Also, previous research on post-traumatic growth and relationships suggests that partners' post-traumatic growth tends to be related (Weiss, 2004; Zwahlen et al., 2010). Partners

in healthy relationships can provide each other with emotional safety and intimacy allowing for mutual support that boosts post-traumatic growth for both partners (Prati & Pietrantoni, 2009; Tedeschi & Calhoun, 2004).

The discovery of the unexpected *High Couple ACEs but Resilient* profile may also be related to the majority of this profile identifying as Black and our inclusion of extrafamilial ACEs such as discrimination often experienced by marginalized racial groups (Wade et al., 2014). Previous research suggests that adults who are in marginalized racial groups are more likely to experience more intra- and extrafamilial ACEs (Merrick et al., 2018; Wade et al., 2014). Further, recent findings on Black couples demonstrate that many Black couples see their couple relationship as a place to find support amidst minority stressors they experience as individuals and couples such as discrimination (Rice, 2023). It could be that partners in this profile similarly find support in each other regarding shared experiences of ACEs whether they be related to minority stress (i.e., racial/ethnic discrimination), community trauma (e.g., neighborhood violence), or household ACEs (e.g., child maltreatment).

The most unexpected profile in the current study was the *Low Couple ACEs but Challenged* profile, who made up one third of the study sample. This profile shared experiences of low couple ACEs but also jointly reported lower couple-focused mindfulness and lower RSE. Partners in this profile tended to have higher incomes and were most likely to be married and parents. This profile was one of the lowest functioning in terms of relationship quality, and had moderate levels of functioning in terms of relationship instability and psychological distress. This profile illustrates that there are many factors contributing to relational functioning that are not accounted for by risk related to threat and deprivation ACEs and lower resources. While a number of factors could explain the lower resiliency and functioning jointly reported despite lower ACEs, it may be that parenting stress is one of these factors. This profile was the most

likely to have children. Further, post-hoc descriptive analyses demonstrate that this profile was most likely to have children under the age of five, as well as under the age of 18 months. In general, parents tend to be less focused on the couple relationship during early parenting and are more likely to report lower relationship satisfaction than non-parents (Twenge et al., 2004), and a significant decline in relationship quality has been documented after birth (Doss et al., 2009).

This study also provides novel contributions regarding various constellations of ACEs between partners. The former profiles were characterized by partners with similar levels of threat and deprivation ACEs. Adding to a small body of literature seeking to understand and explicate patterns among single- and dual-trauma couples, the current study finds that whether partners match in their level of individual ACEs may be important for their own and their partner's levels of couple-focused mindfulness and RSE. Two latent profiles with unmatched partner ACEs were revealed: *Incongruent: High/Low ACEs and Challenged/Resilient* and *High/Low ACEs and Resilient.* Couples in the *High/Low ACEs and Resilient* profile had only one partner with high threat and deprivation ACEs, but both partners reported moderately high couple-focused mindfulness and RSE, suggesting some compensatory functioning for the partner with higher ACEs. We examined more nuanced distinctions between these two groups to consider why a couple with nonshared ACEs experiences would have either nonshared resiliency levels or shared resiliency levels.

Couples in the *Incongruent: High/Low ACEs and Challenged/Resilient* profile had a lower proportion of married couples and tended to have newer relationships compared to the *High/Low ACEs and Resilient* profile. It could be that couples in this profile, being together for shorter, have not had enough experience together to develop skills and characteristics to best manage the risks associated with their shared ACEs. Couples who have been together longer, such as those in the *High/Low ACEs and Resilient* profile, have had more time to develop

resiliency together. The lower functioning of both of the "high/low ACEs" profiles have compared to the *Low Couple ACEs and Resilient* profile could be due to the high ACEs only one partner experiences. Because these profiles fall in the middle of all of the risk and resiliency profiles on overall functioning, having a partner with fewer ACEs may be a positive influence for partners with higher ACEs, especially over time.

Utility of Dimensional Approach to Adversity

One of the novel contributions of the current study to the field of ACEs and relational well-being was the use of a dimensional approach, distinguishing threat ACEs from deprivation ACEs (McLaughlin et al., 2020) in creating the profiles. While threat and deprivation ACEs were related in all profiles, looking across profiles, we were able to find a distinction in levels of deprivation ACEs that distinguished between the two profiles with high couple ACEs. The profile with fewer deprivation ACEs (compared to the other profile with high couple ACEs) had similar levels of relationship quality to all other profiles, including profiles with low couple ACEs. Additionally, the profile with fewer deprivation ACEs only differed from the highest functioning profile (*Low Couple ACEs and Resilient*) in relationship instability and psychological distress. This distinction was noteworthy in the current study of a community-based sample seeking preventative CRE with relatively low average number of ACEs. Distinguishing between threat and deprivation ACEs may be even more consequential in a more vulnerable population that may be especially susceptible to ACEs, such as a sample of couples or individuals in poverty seeking clinical services for relational or mental health problems.

Practical Implications

The latent profiles uncovered in this study offer practitioners information about patterns within couples enrolling in community-based prevention programs for couples. Some of the profiles were expected and were consistent with previous findings and practical implications

about ACEs and individual and relational functioning. Our results also expand on the widely accepted negative link between ACEs and individual/relational functioning and highlight the nuance and diversity within populations with high ACEs and for couples with nonshared ACEs.

While there are overarching skills (e.g., self-care, couple communication, external social support) that can be developed to improve relational and individual functioning for all couples, this study highlights potential unique needs across risk and resiliency profiles. Practitioners may consider administering baseline assessments to better understand risk and resiliency among couples and to inform potential characteristics, skills, or support to focus on in prevention programs. For example, couples with high ACEs may benefit generally from psychoeducation about trauma, its impact on individuals and relationships, and post-traumatic growth. Partners with incongruent amounts of ACEs may also benefit from information about the systemic influence of adversity, post-traumatic growth for the partner with high ACEs, and how to support a partner with greater ACEs while maintaining healthy boundaries.

While conflict management and regulating emotional reactivity is frequently an objective in CRE, couples who report more deprivation ACEs may also benefit from practicing emotion identification, differentiation, and communicating their emotions and needs within their relationship. Improving these processes could promote couple-focused mindfulness and RSE, which were more closely connected to relational functioning in the current sample than ACEs. Further, improving couple-focused mindfulness and RSE may also further enhance one's emotional functioning. These are all teachable skills that could be improved through CRE. Mindfulness and RSE are goals of existing CRE curricula (Futris & Adler-Baeder, 2014; McGill et al., 2016), and these programs (*ELEVATE*, *Couples Connecting Mindfully*) were recently found to be effective among diverse couples (Adler-Baeder et al., 2022). Incorporating more

knowledge and skills related to emotional functioning would complement mindfulness and RSE skills well, especially for couples with high levels of ACEs.

Additionally, trauma-informed practitioners should bear in mind that having few ACEs does not negate couple or family needs. Couples that report low ACEs and low functioning may be assessed for higher parenting stress, and parenting topics may be a priority for such couples. It is also important to note that allow we found some demographic differences between profiles, practitioners should apply the demographic patterns and differences between the profiles with caution. Assumptions about level of risk, resilience, and individual/relational functioning should not be made based on demographic information or number of ACEs, but on baseline assessments of multiple risk and resiliency factors as well as individual and relational functioning.

Limitations

Despite many strengths of the current study such as the large diverse sample of couples, the person-centered approach uncommon in CRE samples, the assessment of household and community ACEs, and the within-couple assessment of risk and resilience profiles, the current study's findings should be interpreted with some limitations in mind. All measures in this study were self-report survey measures that can be susceptible to bias. ACEs may be particularly subject to recall bias, as they assess events that occurred before age 18 and the current sample is inclusive of individuals across the lifespan. Another limitation to consider is that imbalanced sample sizes across latent profiles may have made it more difficult to detect statistically significant differences in demographics and concurrent functioning between profiles with ANOVAs and chi-square tests. It may be that distinctions in demographics and concurrent functioning may be made in a sample in which the profiles' sub-sample sizes are more balanced.

Future Directions & Conclusions

While theory-driven, variable-centered approaches are valuable, person-centered approaches are necessary to uncover patterns among diverse samples that may go unnoticed otherwise. This is demonstrated in the current study, as six unique risk and resilience couple profiles were discovered: Low Couple ACEs and Resilient, Low Couple ACEs but Challenged, High/Low ACEs and Resilient, Incongruent: High/Low ACEs, Challenged/Resilient, High Couple ACEs but Resilient, and High Couple ACEs and Challenged. This study only used cross-sectional data before CRE, as follow-up data collection for the larger study is ongoing. An important next step is to examine how risk and resilience profiles predict improvements in individual and couple outcomes after CRE programming. It would be valuable for practitioners to know whether certain profiles of couples experience fewer or greater gains in key outcomes after programming. The continued attention to ACEs, individually and within couples, is encouraged in studies of CRE. The complex patterns of risk and resiliency found in our profiles can be expanded to further enhance our identification of the types of diversity within samples. These efforts are crucial for enhancing program experiences and strengthening program outcomes.

Table 4. Descriptive statistics for all Study 2 variables.

						Skewness		Kurtosis	
	N	**Min.**	**Max.**	**Mean**	**SD**	**Stat**	**SE**	**Stat**	**SE**
Threat ACEs	809	0.00	7.00	2.08	1.90	0.67	0.09	-0.56	0.17
	795	**0.00**	**7.00**	**2.12**	**1.92**	**0.63**	**0.09**	**-0.63**	**0.17**
Dep. ACEs	809	0.00	7.00	1.34	1.54	1.27	0.09	1.13	0.17
	795	**0.00**	**7.00**	**1.42**	**1.62**	**1.25**	**0.09**	**1.09**	**0.17**
MCRS	809	1.00	7.00	5.63	0.74	-0.55	0.09	0.30	0.17
	795	**1.00**	**7.00**	**5.60**	**0.79**	**-0.65**	**0.09**	**0.91**	**0.17**
RSE	809	1.00	7.00	5.03	1.25	-0.10	0.09	-0.76	0.17
	795	**1.00**	**7.00**	**4.93**	**1.30**	**-0.12**	**0.09**	**-0.59**	**0.17**
RQ	809	10.00	70.00	53.19	12.62	-0.76	0.09	0.17	0.17
	795	**10.00**	**70.00**	**52.95**	**12.79**	**-0.73**	**0.09**	**0.04**	**0.17**
Rel. Instability	809	4.00	12.00	7.27	2.44	0.33	0.09	-0.76	0.17
	795	**4.00**	**12.00**	**7.35**	**2.44**	**0.33**	**0.09**	**-0.73**	**0.17**
Psych. Distress	809	10.00	50.00	21.66	8.15	0.65	0.09	-0.12	0.17
	795	**10.00**	**50.00**	**22.18**	**8.26**	**0.71**	**0.09**	**0.04**	**0.17**

Note. Partner 1 results are unformatted, and Partner 2 results are in bolded font.

Table 5. Bivariate correlations among variables used in primary analyses

	Threat ACEs Partner 1	**Threat ACEs Partner 2**	**Dep. ACEs Partner 1**	**Dep. ACEs Partner 2**	**MCRS Partner 1**	**MCRS Partner 2**	**RSE Partner 1**	**RSE Partner 2**	**RQ Partner 1**	**RQ Partner 2**	**Rel. Instability Partner 1**	**Rel. Instability Partner 2**	**Psych. Distress Partner 1**	**Psych. Distress Partner 2**
Threat ACEs Partner 1	1													
Threat ACEs Partner 2	.23***	1												
Dep. ACEs Partner 1	.60***	.22***	1											
Dep. ACEs Partner 2	.23***	.64***	.26***	1										
MCRS Partner 1	-.08*	.01	-.08*	0.01	1									
MCRS Partner 2	-.07	-.05	-.06	-.05	.41***	1								
RSE Partner 1	-.14***	-.05	-.21***	-0.06	.53***	.28***	1							
RSE Partner 2	-.11**	-.18***	-.10*	-.17***	.25***	.50**	.24***	1						
RQ Partner 1	-.16***	-.09*	-.16***	-.13***	.65***	.49***	.44***	.35***	1					
RQ Partner 2	-.16***	-.17***	-.12**	-.15***	.44***	.65***	.27***	.42***	.62***	1				
Rel. Instability Partner 1	.23***	.16***	.22***	.17***	-.36***	-.36***	-.30***	-.30***	-.64***	-.54***	1			
Rel. Instability Partner 2	.17***	.21***	.18***	.22***	-.37***	-.43***	-.28***	-.33***	-.57***	-.64***	.68***	1		
Psych. Distress Partner 1	.26***	.16***	.30***	.17***	-.28***	-.21***	-.40***	-.21***	-.37***	-.24***	.28***	.24***	1	
Psych. Distress Partner 2	.19***	.34***	.20***	.35***	-.11**	-.30***	-.17***	-.38***	-.23***	-.30***	.22***	.31***	.34***	1

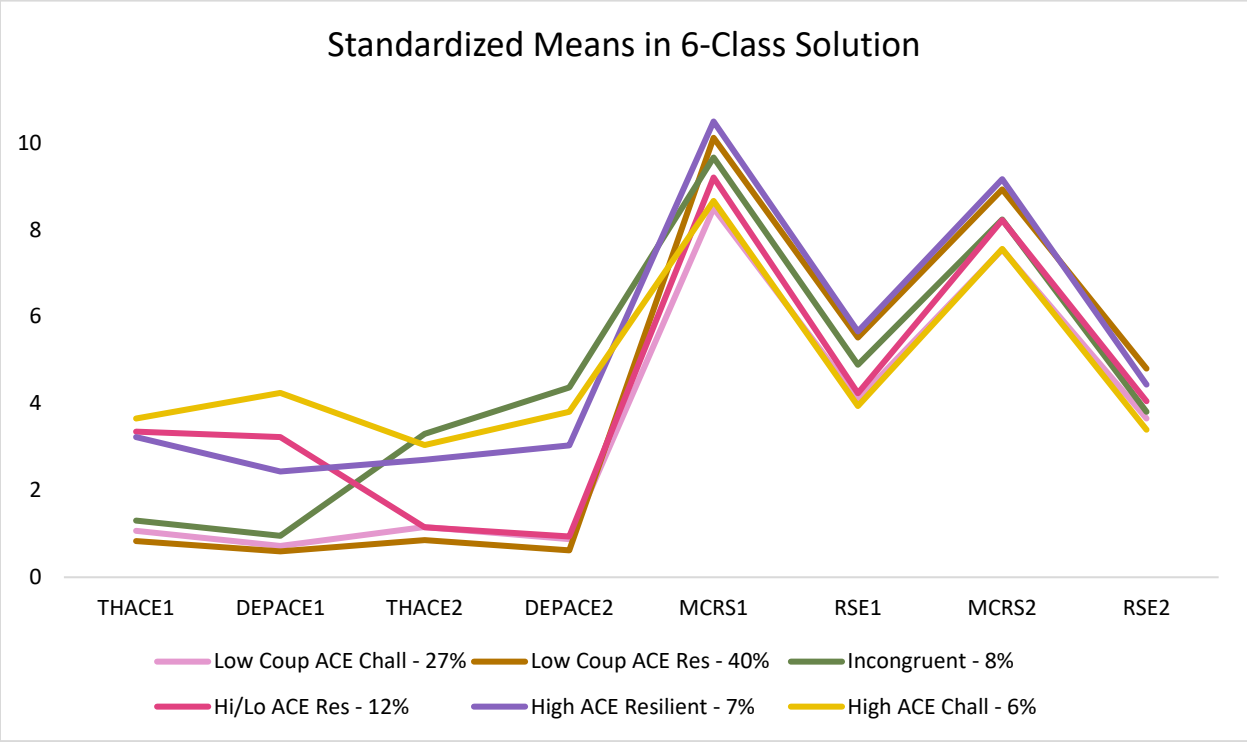
Note. ***$p < .001$, **$p < .01$, *$p < .05$, $^{\dagger}p < .10$

Table 6. Comparison of model fit indices for 1-class through 7-class solutions

K	LL	AIC	BIC	SABIC	BLRT *p*	VLMR-LRT *p*	Entropy	Profile Proportions
1	-10844.46	21720.92	21798.12	21747.31	--	--	--	1. 100%, *n* = 921
2	-10480.60	21011.20	21131.84	21052.44	p < .001	p < .001	0.82	1. 75%, *n* = 692 2. 25%, *n* = 229
3	-10310.95	20689.89	20853.96	20745.98	p < .001	p = .01	0.71	1. 32%, *n* = 296 2. 46%, *n* = 426 3. 22%, *n* = 199
4	-10159.90	20405.80	20613.30	20476.74	p < .001	p = .12	.73	1. 29%, *n* = 270 2. 16%, *n* = 149 3. 13%, *n* = 119 4. 42%, *n* = 383
5	-10087.40	20278.79	20529.71	20364.57	p < .001	p = .42	.75	1. 6%, *n* = 52 2. 30%, *n* = 274 3. 40%, *n* = 365 4. 11%, *n* = 104 5. 14%, *n* = 126
6	**-10041.92**	**20205.83**	**20500.18**	**20306.45**	**p < .001**	**p = .42**	**.76**	**1. 27%, *n* = 251** **2. 40%, *n* = 365** **3. 8%, *n* = 75** **4. 12%, *n* = 109** **5. 7%, *n* = 62** **6. 6%, *n* = 59**
7	-9994.68	20129.36	20467.14	20244.83	p < .001	p = .53	.75	1. 21%, *n* = 195 2. 14%, *n* = 133 3. 39%, *n* = 360 4. 4%, *n* = 38 5. 6%, *n* = 56 6. 9%, *n* = 85 7. 6%, *n* = 54

Note. Best fitting solution is in bold.

Figure 5. Standardized indicator means for the 6 risk and resiliency couple profiles



Note. Measure abbreviations: THACE = threat ACEs, DEPACE = deprivation ACEs, MCRS = couple-focused mindfulness, RSE = romantic self-efficacy. Number after measure abbreviation indicates which partner's report (i.e., partner 1 or partner 2).

Table 7. Comparing demographics and functioning across risk and resiliency profiles

	Low Couple ACEs and Resilient (40%, n = 365 couples)	*Low Couple ACEs but Challenged* (27%, n = 251 couples)	*High/Low ACEs and Resilient* (12%, n = 109 couples)	*Incongruent: High/Low ACEs, Challenged/Resilient* (8%, *n* = 75 couples)	*High Couple ACEs but Resilient* (7%, *n* = 62 couples)	*High Couple ACEs and Challenged* (6%, *n* = 59 couples)	
Relationship Status							
Married	68% (206)	68% (137)	61% (67)	52% (45)	60% (36)	60% (28)	$\chi 2$ (20) = 33.58*
Committed or engaged	28% (84)	26% (53)	35% (39)	39% (34)	34% (21)	33% (15)	
Casually Dat.	4% (11)	4% (9)	1% (1)	3% (2)	3% (2)	5% (2)	
Separated	<1% (1)	2% (3)	3% (3)	6% (5)	3% (2)	2% (1)	
Race							
Afr. Am./Black	46% (140)	45% (91)	48% (53)	49% (42)	50% (30)	46% (22)	$\chi 2$ (30) = 49.15*
Euro. Am./white	46% (140)	47% (94)	48% (44)	42% (36)	42% (25)	44% (21)	
Another race/ethnicity	8% (24)	8% (16)	4% (4)	9% (8)	8% (5)	10% (4)	
Parent Status							
Yes	72% (217)	83% (166)	76% (83)	77% (67)	79% (47)	78% (36)	$\chi 2$ (5) = 12.07*
No	28% (85)	17% (35)	24% (27)	23% (20)	21% (13)	22% (10)	
Relationship Length	11.04 (12.28)	13.32 (13.38)[a]	11.44 (15.52)	8.48 (10.66)[a]	9.96 (13.70)	9.34 (12.89)	F(5,893) = 2.77*
Annual House. Income	3.18 (1.38)[b,c]	3.28 (1.33)[d,e]	2.89 (1.25)	2.75 (1.22)[b,d]	2.75 (1.12)	2.62 (1.12)[c,e]	*F*(5,909) = 5.68***
RQ	59.34 (8.83)[f,g,h]	45.28 (11.16)[f,i,j]	52.54 (10.02)[j]	53.66 (10.89)[g,i,k]	48.69 (11.25)	44.64 (11.94)[h,k]	*F*(5,915) = 68.75***
Rel. Instability	6.20 (2.16)[l,m,n,o]	8.07 (2.27)[l,p,q]	7.82 (2.25)[m,s]	6.80 (2.29)[p,t]	8.37 (2.35)[o]	9.05 (2.39)[n,q,s,t]	*F*(5,803) = 31.39***
Psych. Distress	18.51 (5.76)[u,v,w,x,y]	23.26 (6.57)[u,z]	23.56 (7.12)[w]	24.00 (6.32)[v]	26.10 (7.32)[x]	27.82 (7.61)[y,z]	*F*(5,915) = 41.71***

Note. +$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$. Significant mean differences are denoted with superscripts. Income is an ordinal variable: 1 = <$20K, 2 = $20-40K, 3 = $40-75K, 4 = $75-100K, 5 = $100K+.

General Discussion

As many disciplines have independently recognized the importance of healthy couple relationships and the risks ACEs present to overall health and well-being in individuals, the utility of prevention science approaches and research that combine these topics is apparent. Federal funds have been allocated for CRE to expand access to diverse and vulnerable populations since 2006 and research on CRE programs has proliferated. Research shows that there are teachable skills that individuals and couples can learn and practice to improve their relationships and prevent negative outcomes related to unhealthy relationships. The newest generation of CRE research aims to answer complex questions regarding *for whom* CRE works by assessing specific subpopulations and contextual factors, as well as *how* CRE works by assessing prospective associations among changes after CRE.

Although CRE initiatives among populations who are at higher risk of having ACEs are valued and encouraged by funders, there has been little effort in research to explore unique participant experiences related to ACEs. Additionally, resilience perspectives and assessments of partner influences in the study of CRE and ACEs, individually, and in combination, are extremely rare. The current dissertation aimed to address these gaps by utilizing a prevention science approach with diverse methods. Specifically, the goals of this two-study dissertation were (1) explore the concept of couple level ACEs history, (2) advance the understanding of whether and how couple level ACEs influence CRE program experiences for self and partner, (3) consider the nature of ACEs and identify couple level risk and resiliency typologies in a diverse sample of couples, and (4) determine how such typologies are linked to other sample characteristics including individual and relational functioning.

The first study adds to the small but growing literature exploring *how* CRE works by focusing on dyadic skills-related processes of change after CRE. The study used advanced methods including the use of dyadic data, tests of moderation within an actor-partner interdependence model, and longitudinal assessments from pre-program up to one year after CRE. Findings suggested that among the seven skill areas addressed in the CRE program, participants reported the most change in self-care, conflict management, and partner care, and improvements in these skills drive later improvements in relationship quality for oneself, but not one's partner. Drawing on assumptions from clinical research on single- and dual-trauma couples and theoretical assumptions from interdependency theory, this study also considered the novel concept of cumulative couple ACEs, or the combined number of ACEs of both partners. Findings suggest that the link between immediate improvements in conflict management and later improvements in relationship quality was weaker for participants with more cumulative couple ACEs which carries some implications for practice.

By combining "how" and "for whom" frameworks that guide contemporary CRE research questions, the first study contributed multiple advancements to the CRE field. First, the skills in which participants reported the most gains highlight *NERMEM* (Futris & Adler-Baeder, 2013) elements that may be of most relevance in CRE. Self-care is a newer CRE program emphasis as suggested by *NERMEM* and is emphasized in the two curricula used in the current study. This study is the first to validate CRE efforts to improve individual self-care behaviors as a means of improving relationship quality. This study also added to existing evidence suggesting that healthy conflict management and positive interactions are critical content elements of CRE programs. The novel trauma-informed risk and resilience approach taken in the current process of change assessment allowed us to better understand how immediate changes may differentially

influence later outcomes at various levels of ACE-related risk. Our findings suggest that conflict management may be a skill area to emphasize even more strongly among couples who have experienced greater ACEs.

Complex process of change models that include dyadic influences and assess moderation of processes are critical for understanding how CRE works for diverse couples, and much is left to be learned. Specifically, we found no evidence of partner influences in processes of change after CRE with the skills assessed immediately post-program. This suggests that one's reports of one's improvements in couple relationship skills drive their own perceptions of improvements in their relationship, even when considering their partner's self-reports of skill improvements. Individuals' partners' reports of their couple relationship skills may be a valuable element for future research to consider to explain more of the variance in relationship quality. Future research may also consider exploring partner influences at various follow-up assessments after CRE. Additionally, couple-level ACEs was a new concept explored in Study 1 that future researchers may consider. Assessments comparing the utility of measuring ACEs at the couple or individual level would be useful as scholars continue to better understand the systemic nature and dyadic influences of ACEs.

Although variable-centered approaches that focus on exploring concurrent and longitudinal associations between variables, as the one used in the first study of this dissertation, are fundamental in studying processes of change and moderation, person-centered approaches allow researchers to uncover typologies of participants that may go unnoticed with traditional approaches to CRE research. Using a more racially diverse sample, dyadic couple data, and a dimensional approach to ACEs assessment, the second study of this dissertation found six latent couple profiles of risk and resilience. Some findings were expected based on existing findings

from research on ACEs in CRE samples—couples with low threat and deprivation ACEs and higher levels of resilience factors had the highest levels of individual and relational functioning. On the other hand, couples with high levels of both types of ACEs and lower levels of resilience factors had the lowest levels of functioning. Our novel study also highlighted the diversity among couples in CRE related to ACE-related risk and resilience. Partners who reported unmatched levels of risk appeared in two profiles: one in which both partners reported moderate levels of resiliency and one in which the partner with more ACEs reported below average levels of resiliency. Couples in these profiles tended to report moderate levels of individual and couple functioning. Some couples reported lower resilience factors and lower functioning despite having few ACEs. Notably, some couples reported high levels of resilience factors and moderate functioning despite both partners having high amounts of ACEs. Our findings also validated our consideration of dimensions of ACEs, as more deprivation ACEs tended to be linked with lower levels of resilience factors and lower levels of individual and relational functioning. In order to strengthen trauma-informed and strengths-based approaches in community based CRE, understanding such complexity and nonlinearity of ACE-related risk and resilience among couples that enroll in CRE is essential. Baseline assessments of risks, as well as strengths of couples, before CRE can help inform program design so that CRE can be modified or supplemental information and resources provided to best meet the needs of participants depending on their own needs and strengths.

While a trauma-informed prevention science approach in CRE research is new, this dissertation used diverse and advanced methods to highlight its value. We encourage other scholars to consider how early experiences shape couples' experiences before, during, and after CRE and how CRE program experiences can be adjusted or expanded to meet needs related to

early adversity. This includes the study and incorporation of resiliency factors such as couple-focused mindfulness and RSE. There are likely many other resiliency factors participants bring to CRE that are not assessed in the current dissertation. Future researchers may consider continued exploration of modifiable, teachable resiliency factors that can be incorporated into CRE programs to outweigh risks of early adversity. We also encourage ACEs and relationship scholars to continue considering the systemic nature of ACEs. Our findings demonstrate the influence of cumulative couple ACEs as well as the diversity among couples in various combinations of levels of partners' ACEs. The study of partner influences and couple-level influences of ACEs is in its infancy. Trauma-informed approaches have been mostly utilized in clinical interventions for couples; integrating trauma-informed approaches in community-based CRE that consider shared and nonshared early experiences and their implications for relational dynamics and outcomes would best promote healthy relationships and individuals within diverse and vulnerable populations.

Self-Reflection

In an effort to explicitly connect my growing identity with my research agenda, I was asked to reflect on these dissertation studies and the work in my program that they were built from as both a growth experience in identity development and as a scholarly enterprise. I was asked: What are you most proud of regarding your demonstration of skills, your approach, and your contributions to new knowledge in the field? What can we say now about the topics of ACEs and CRE that we couldn't say prior to this work? What experiences and biases did you bring to the process? How are YOU different now compared to before beginning the doctoral program and developing and offering these studies?

I entered the Marriage and Family Therapy clinical program in 2016 with a general understanding of the link between individual mental health and wellness and intimate relationships that I learned through my personal experience. I was passionate about supporting and teaching others about healthy relationships. What I lacked upon beginning my graduate studies was an awareness of my own adverse experiences, how they influenced my body and subsequent experiences, and how they would soon influence my professional roles as a therapist and a relationship scholar. I had never heard of the word trauma in the context of mental health and wellness.

During my clinical program, as I learned more about how adverse early experiences can influence us and the neurophysiological effects of trauma, I became passionate about this topic, although why I was so interested was yet to be understood. The topic of trauma and its effects just easily clicked with me. Simultaneously, through interactions with clients and feedback from clinical supervisors, I began to progressively more deeply reflect on the kind of person I was and how that influenced me in professional and personal realms. At the time, these areas of development (interest in trauma, self-reflection) were parallel, disconnected lines. Now, I recognize that this self-reflection was the beginning of my awareness of symptoms related to my own adversity.

At this time, I was also working with the Alabama Healthy Marriage and Relationship Education Initiative (AHMREI) learning about community-based prevention programs for couples. It was clear that AHMREI prioritized enhancing accessibility of relationship education programs for more vulnerable populations with fewer resources and more stressors. They emphasized self-awareness and self-care skills in relationship education, understanding the links between an individual's context and past experiences and their relationships. In my work with

AHMREI, I did not hear very much discussion about trauma specifically or traumatic early experiences and how they can be so impactful for adult relationships. However, my framework about factors that distinguish healthy and unhealthy individuals and relationships was growing and beginning to center on unhealed trauma as a key distinguishing factor. As I entered the PhD program seeking my own research agenda, I saw an opportunity to make a difference by integrating my new favorite topic, trauma, with relationship education research and practice. I began making progress on my research program when the COVID-19 pandemic began.

With a lot of extra alone time on my hands during the early months of the pandemic, like many during this time, I had no choice but to turn inward and dive deeper into the self-reflection that was initiated in my early grad school years. I developed regular meditation and yoga practices. I read books that deepened my understanding of different types of trauma that I did not learn about in my clinical program, specifically complex trauma and religious trauma. I read stories of deconstruction and healing. I reflected. I was the only child of amazing people who had no shortage of their own challenges, and was thus one of those children who had to "grow up fast." I was also a girl who was raised within fundamentalist Christianity in the rural South, and at this time of inward attunement, was starting to accept her queer identity for the first time. How I ended up here—a therapist with a special interest in trauma—started to make a lot of sense.

Unbeknownst to me upon entering grad school, I believe I was drawn to being a therapist and teaching about healthy relationships because I spent most of my life until that point feeling deeply misunderstood without an internal compass of what is right for me. I was so disconnected from myself, seeking to understand my emotions and experiences through intellectualizing them. I had experienced complex trauma, and it drove the way I moved in the world for a very long time.

The work I was doing in my professional world was inspired, even if subconsciously, by my personal experiences, and it was also leading me to my own healing. This healing has and will continue to, in turn, improve my work in the professional realm. It is all interconnected. So this dissertation is a symbol. Not only is it the accumulation of my education and professional skill development over the last seven years, but it is also a symbol of my personal growth over the last seven years.

I have so enjoyed spreading my wings as a scholar and practitioner during my time in graduate school. While I am proud of my advanced research methods skills I have developed and novel contributions my work has made to the CRE field, I am most proud of the impact my work has and will continue to have on individuals and couples throughout Alabama. I've had the immense pleasure of simultaneously conducting this research and applying my findings in collaboration with our programmatic leadership to develop solutions to improve trauma informed efforts in our CRE programs. This includes training sessions in trauma-informed practice for our community partners and for our youth relationship education facilitators. I have taken my story and turned it into my work that has made a positive mark on my community. I am proud to prioritize resiliency in the study of ACEs and to emphasize strengths-based approaches in my research as well as practical work in CRE. I fundamentally believe that individuals who experience hardship are inherently resilient, and when we uncover specific teachable skills linked to resiliency, we can further enhance individuals' and communities' capacity for healing and healthy relationships.

My work demonstrates how common adversity is among community-based populations and those enrolling in CRE. It highlights the systemic influences of trauma—that adversity affects individual *and couple relationship* skills and functioning. Thus, a trauma-informed

approach is essential for ensuring CRE programs are as effective as possible. My study of ACEs within community-based samples illustrates that trauma-informed approaches should go beyond the therapy room and be widely applied to intervention/prevention programs of any realm potentially influenced by trauma—couple relationships, parenting, workforce development, any program related to health, wellbeing, and relations with others. Lastly, my work demonstrates that although adversity is linked with risks to couple relationship functioning, resiliency is more closely linked to couple relationship functioning. Despite adversity that cannot be undone, resiliency can be built, and people who have experienced trauma have so much capacity to learn and to have healthy lives and relationships.

This dissertation is a symbol of ALL of my work—professional and personal. It is a symbol of perseverance and the journey to understanding and owning my experience, trusting my knowledge, and finding my voice. This dissertation symbolizes my development from a fixed mindset to a growth mindset and learning to emphasize progress over perfectionism. And just like my personal growth, this dissertation came together not in one week or one month, but slowly over time, bit by bit. The day to day struggle does not reflect the full picture, but when I look back, I see how those small, everyday contributions add up to an amazing product and the strong, resilient person that I am. To be able to embody my work, to see my individual health and relationships improve through this educational and professional journey has been so dear and special to me. The most exciting part is that I know My Work (interconnected personal and professional work) does not stop here. I'm excited to see where this work takes me, how I will continue to grow, and the positive impact my journey will have on others.

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Appendix A: ACE items assessed in Study 2 categorized according to dimension

Threat ACEs	
Emotional abuse	How often, if ever, did a parent, stepparent or another adult in your household swear at you, insult you, put you down, or humiliate you? OR act in a way that made you afraid that you might be physically hurt?
Physical abuse	How often, if ever, did a parent, stepparent or another adult in your household push, grab, slap, or throw something at you? OR hit you so hard that you had marks or were injured?
Sexual abuse	Did an adult or older relative, family friend, or stranger who was at least 5 years older than you ever touch or fondle you in a sexual way or have you touch their body in a sexual way?
	Did an adult or older relative, family friend, or stranger who was at least 5 years older than you ever attempt to have or actually have oral, anal, or vaginal sex with you?
Witnessed domestic violence	How often, if ever, did you see or hear a parent, stepparent, or another adult who was helping to raise you being yelled at, screamed at, sworn at, insulted or humiliated? OR slapped, kicked, punched, or beaten up? OR being hit or cut with an object, such as a stick/cane, bottle, club, knife or gun?
Witnessed community violence	How often, if ever, did you see or hear someone being beaten up, stabbed, or shot in real life?
Bullied	How often were you bullied by a peer or classmate?
Discrimination/racism	Sometimes people are treated badly, or are considered inferior, because of the color of their skin, because they speak a different language or have an accent, or because they come from a different country or culture. While you were growing up (during your first 18 years of life), how often, if ever, did you feel that you were treated badly or unfairly because of your race or ethnicity?
Deprivation ACEs	
Emotional neglect	How often, if ever, did you feel that no one in your family loved you or thought you were important or special? OR that your family didn't look out for each other, feel close to each other, or support each other?
Physical neglect	How often, if ever, did you feel that you didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? OR that your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Addiction within the home	Did you live with anyone who was a problem drinker or alcoholic OR with anyone who used illegal street drugs or abused prescription drugs?
Mental illness within the home	Did you live with anyone who was depressed or mentally ill or who was suicidal?
Lived with someone who was incarcerated	Did you live with anyone who served time or was sentenced to serve time in a prison, jail, or other correctional facility?
Lack of neighborhood support	Did you feel people in your neighborhood looked out for each other, stood up for each other, and could be trusted?
Foster care	While you were growing up (during your first 18 years of life) were you ever in foster care?

Appendix B: All items comprising the Mindfulness in Couple Relationships Scale

I observe my experiences with my partner without judging.
I carefully listen to my partner when they are speaking without regard for time.
Even when it makes me uncomfortable, I allow my partner to express their feelings.
I observe my partner's emotions without judging.
My interactions with my partner are opportunities to learn new things about them.
I rush through activities with my partner without really paying attention to them. **(reverse scored)**
I tune into my partner when they are talking to me without regard for time.
I take time to thoughtfully be present with my partner.
I listen to my partner's ideas without judgement.
I am capable of being present in my relationship.
During arguments I accept my partner has a different point of view than I do.
I am able to purposefully participate in my relationship.
I accept my partner for who my partner is today.
I trust my abilities in my relationship.
I notice when my partner appears distracted.
Each moment with my partner is an opportunity for new or unique experiences.
I can "just be" with my partner.
I keep an open mind when talking to my partner.
I accept the positive and negative characteristics of my partner.
I easily let go of negative emotions towards my partner.
I do not try to change my partner.
I am aware when I am feeling negative towards my partner.
Negative emotions related to my partner take over my everyday thoughts. **(reverse scored)**
I am attentive to my partner.
After conflict I recognize when it is time to let go of negative feelings.
I get stuck in my negative emotions toward my partner. **(reverse scored)**
I notice my feelings toward my partner.
I notice when my partner seems upset.
I often feel unaware of my partner's thoughts and feelings. **(reverse scored)**
I notice when my partner makes efforts in our relationship.
I can spend time with my partner without trying to achieve a goal.