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Sandy-Ann M. Griffith

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THE RELATIONSHIP BETWEEN CHILDHOOD ADVERSITY AND ADULT RELATIONSHIP HEALTH FOR ECONOMICALLY MARGINALIZED, RACIALLY AND ETHNICALLY DIVERSE INDIVIDUALS

by

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A Dissertation Submitted to the Faculty of Old Dominion University in Partial Fulfillment of the Requirements for the Degree of

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ABSTRACT

THE RELATIONSHIP BETWEEN CHILDHOOD ADVERSITY AND ADULT RELATIONSHIP HEALTH FOR ECONOMICALLY MARGINALIZED, RACIALLY AND ETHNICALLY DIVERSE INDIVIDUALS

Sandy-Ann M. Griffith
Old Dominion University, 2018
Chair: Dr. Edward Neukrug

Childhood adversity is prevalent and significantly influences an individual’s life. Adverse Childhood Experiences (ACEs) are linked to chronic physical and mental health issues, as well as maladaptive and abusive patterns of behavior in adult relationships such as unhealthy problem-solving strategies, poor ability at conflict resolution, and intimate partner violence (IPV). The current study explored the relationship between ACEs and adult relationship health outcomes. Controlling for the effect of average individual yearly income on adult relationship health, the extent to which demographic factors (i.e., gender, race and ethnicity, and children status) moderate the relationship between ACEs and adult relationship health and the extent to which behavioral self-regulation mediates the relationship between ACEs and adult relationship health are examined. The study utilized a subset of archival pre-data from a large, federally funded research grant which offered individual and couple relationship education (RE) to economically marginalized, racially and ethnically diverse populations. Descriptive statistics, correlational analyses, multivariate analysis of covariance (MANCOVA), and path analysis answered the research questions and tested the path models. Results indicated the increased prevalence rate of ACEs among racially and ethnically diverse populations. Further, higher ACEs scores were associated with lower adult relationship health scores. There were no significant interaction effects with gender, race and ethnicity, and children status, and no significant indirect
effects with behavioral self-regulation scores. Additionally, income was not a significant
covariate. Study implications as well as effective and accessible preventive interventions for at-
risk populations are discussed.
This dissertation is dedicated to my ALWAYS praying mother, my ALWAYS present father, and my RIDE OR DIE sisters Kella and Dawn.
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CHAPTER ONE: INTRODUCTION

This study explored the relationship between adverse childhood experiences (ACEs) and adult relationship health. Moderator variables including gender, race and ethnicity, and children status (i.e., having no children/having at least one child over the age of 18, or having at least one child under the age of 18), as well as a mediator variable, behavioral self-regulation, are examined. This chapter provides an overview of the literature, the rationale and significance of the study, the problem statement, and the theoretical perspective. An overview of the research methodology including the research questions and a priori hypotheses, research design, and data analyses are provided, along with definitions of study variables and key terms. The chapter concludes with a summary.

Overview of the Literature

Adverse Childhood Experiences (ACEs) Studies

The seminal Adverse Childhood Experiences (ACEs) Study examined the relationship between ACEs that occurred before the age of 18, adult health behaviors and outcomes, and overall wellbeing (Felitti et al., 1998). ACEs include childhood physical, sexual, and emotional abuse; childhood physical and emotional neglect; and household dysfunction. Childhood household dysfunction includes living with a household member who was mentally ill, divorced, incarcerated, a substance abuser, and/or victimized by maternal intimate partner violence (IPV). ACEs study participants were primarily White, middle-aged, educated, and middle-class individuals. Results revealed that ACEs were prevalent and associated with a variety of physical, social, and mental health problems (for e.g., obesity, diabetes, heart disease, lung cancer, autoimmune diseases, risky sexual behavior, poor romantic relationships, substance abuse, depression, suicide, work problems, and early death) (Anda, Butchart, Felitti, & Brown, 2010;
Felitti & Anda, 2010; Felitti et al., 1998; Whitfield, Anda, Dube, & Felitti, 2003). Several studies then replicated and extended the original ACEs study to include disadvantaged populations.

The Public Health Corporation (2013) investigated ACEs in urban neighborhoods in Philadelphia with racially and ethnically diverse participants who held high school diplomas and earned varying incomes. Additional ACEs relevant to this population were examined such as experiencing community violence and discrimination. Study results indicated higher prevalence rates of ACEs compared to the original ACEs study. Additionally, Wade, Shea, Rubin, and Wood (2014) studied economically disadvantaged urban young adults in Philadelphia and expanded the understanding of ACEs to include growing up in a single-parent home, being in the child welfare system, facing chronic financial stress, and being involved in the juvenile justice system.

Moreover, ACEs studies with disadvantaged populations further explored the negative impact of economic hardship and poverty on ACEs outcomes (Font & Maguire-Jack, 2016; Giovanelli, Reynolds, Mondi, & Ou, 2016; Slopen et al., 2016; Wade et al., 2016). These studies highlight the increased prevalence rate of childhood adversity and the significance of economic hardship in determining ACEs outcomes for disadvantaged, racial and ethnic minorities. For example, Wheeler (2017) discovered that economically disadvantaged, racially and ethnically diverse participants who experienced multiple ACEs were more likely to report unsatisfying, low quality couple relationships.

Few studies investigated the relationship between ACEs and adult relationship health and functioning for economically disadvantaged, marginalized individuals (e.g., Umberson, Williams, Thomas, Liu, & Thomeer, 2014; Umberson, Thomeer, Williams, Thomas, & Liu, 2016; Wheeler, 2017). First, Umberson et al. (2014) examined the relationships between childhood adversity, social relationships, and health outcomes among racially and ethnically
diverse individuals. Results showed that Black participants experienced significantly lower levels of relationship quality and satisfaction compared to White participants. Further, Black men disclosed more childhood adversity than White men, and experienced lower quality relationships. Then, Umberson et al. (2016) studied racial disparities in the relationship between ACEs and the quality of men’s relationships throughout the lifespan. In-depth qualitative interviews revealed similar findings. Black men experienced more ACEs than White men. Also, ACEs negatively influenced psychosocial and behavioral coping strategies in childhood, which when carried into adulthood, led to less satisfying relationships. Finally, Wheeler (2017) discovered a significant negative relationship between ACEs and couple relationship quality (defined by relationship self-regulation strategies, relationship effort, and relationship satisfaction) in a sample of economically disadvantaged, racially and ethnically diverse couples.

ACEs scores. A total ACEs score is calculated by adding up the individual number of ACEs one experienced. Total ACEs scores range from zero to 10, with zero indicating no ACEs and higher numbers indicating more exposure to childhood adversity. Most ACEs studies reference a total ACEs score. For example, Felitti et al. (1998) reported that individuals with a total ACEs score of four or more experienced poorer physical health and were 12 times more likely to have a prior suicide attempt, 10 times more likely to use intravenous drugs, and 7 times more likely to engage in alcohol use compared to individuals with a total ACEs score of zero. Further, Font and Maguire-Jack (2016) used total ACEs score categories to group their participants (i.e., total ACEs score of zero, one, two to three, and four and more). Results indicated a significant positive relationship between a total ACEs score of four or more and dropping out of high school, having a divorced status, and earning low-income. Thus, individuals
with a total ACEs score of four or more experience more severe outcomes than individuals with a total ACEs score below four.

**Economic Marginalization and Adult Relationship Health in Disadvantaged Populations**

Chronic economic hardship and subsequent contextual stressors negatively influence adult relationship health and functioning (Charles et al., 2006; Conger, Conger, & Martin, 1999; Hummer & Hamilton, 2010; Umberson et al., 2014). Charles and colleagues (2006) found that economic disadvantage negatively affected couple relationship quality and led to eventual dissolution of the couple relationship. Further, Conger et al. (1999) discovered that financial hardship contributed to increased emotional distress and marital problems among married couples. Also, Hummer and Hamilton (2010) studied economically disadvantaged, racial and ethnic minority, single-parent families and found that they were more at risk for family fragmentation, low marriage rates, limited access to resources, and poverty. These outcomes were particularly salient for Black women. Umberson et al. (2014) reported similar findings stating that economically disadvantaged Black women and mothers have the poorest relationship health outcomes.

**Other Influential Factors of Adult Relationship Health**

Several factors moderate and mediate adult relationship health outcomes. Moderating factors include gender, race and ethnicity, and children status, and a mediating factor includes behavioral self-regulation. First, studies yield inconsistent findings when examining the moderating effect of gender on relationship quality. Some studies report that women consistently experience less relationship satisfaction than men (Amato, Booth, Johnson, & Rogers, 2007; Rogers & Amato, 2000; Stevenson & Wolfers, 2009), yet other studies reveal that women experience higher marital satisfaction than men (King, 2005), or similar levels of relationship
satisfaction (Karney & Bradbury, 1995). Further, large scale studies utilizing U.S. national survey data indicated no significant gender differences in marital quality and satisfaction (Broman, 2005; Gager & Sanchez, 2003). Lastly, a recent study revealed significant, yet small, differences in relationship satisfaction between husbands and wives in clinical samples. There were no gender differences in relationship satisfaction in community-based samples (Jackson, Miller, Oka, & Henry, 2014).

Secondly, racial and ethnic minorities face socioeconomic stressors that directly impact adult relationship health and functioning (Carlson, Barden, Daire, & Greene, 2014; Conger et al., 1999, 2010; Karney & Bradbury, 2005; Hummer & Hamilton, 2010; Masarik et al., 2016; Wheeler, 2017). These studies highlight the increased prevalence of economic hardship in minority groups and discuss how financial hardship negatively affects couple relationship quality. Adult relationship health and functioning are further impacted when gender is added to the intersection of race and ethnicity and economic status. For instance, Umberson et al. (2014) found that economically distressed Black women and mothers experience the poorest adult relationship health outcomes. Similarly, the Fragile Families and Child Wellbeing Study revealed that relationship and family fragmentation were highest among Black mothers and Hispanics (Hummer & Hamilton, 2010). This study also highlighted that Black and Hispanic individuals have the least access to resources and are more likely to live in extreme poverty.

Next, studies address the extent to which children influence adult relationship health. However, findings are inconsistent. A meta-analysis reported that married couples with children feel less satisfied with their relationship compared to married couples without children (Twenge, Campbell & Foster, 2003). This study also found a significant negative correlation between relationship satisfaction and number of children. Further, mothers of infants were most
dissatisfied with their relationship, and men’s satisfaction levels were consistent regardless of the child’s age. Another meta-analysis revealed that couple relationship quality significantly decreased during early parenthood (i.e., from birth to 14 months) (Mitnick, Heyman, & Smith Slep, 2009), and a recent study found that individuals with no children reported higher satisfaction levels and more connection to their partner compared to individuals with two to three children (Meyer, Robinson, Cohn, Gildenblatt, & Barkley, 2016). Markedly, among individuals with children, those with a child between the ages of 8 and 12 felt most satisfied with their relationship. Thus, individuals may feel more satisfied with their couple relationship as their children age.

Lastly, behavioral self-regulation influences adult relationship health (Wilson, Charker, Lizzio, Halford, & Kimlin, 2005). Behavioral self-regulation is defined by relationship self-regulation strategies and relationship effort. Relationship self-regulation strategies are intentional behaviors that enhance the couple relationship. Relationship effort means paying attention to and meeting the needs of the couple relationship, setting individually-oriented relationship goals, and consistently working to achieve those goals. Wilson et al. found that behavioral self-regulation explained 25% of the variance in relationship satisfaction levels among newlywed and long-married couples. Further, Shafer and colleagues discovered a significant positive relationship between relationship effort and relationship satisfaction and stability among four differing relationship statuses (Shafer, Jensen, & Larson, 2014).

**Individual and Couple Relationship Education: Interventions Improving Adult Relationship Health Outcomes for Disadvantaged Populations**

Relationship Education (RE) includes individual and couple programs that focus on healthy communication, effective problem-solving and conflict resolution strategies, and deep-
rooted issues such as finances, commitment, expectations, and forgiveness (Fincham, Stanley, & Beach, 2007; Hawkins, Blanchard, Baldwin, & Fawcett, 2008; Stanley, Blumberg, & Markman, 1999). These programs are mostly offered in group format and have been shown to improve adult relationship health and overall well-being for economically disadvantaged, marginalized individuals and couples (Carlson et al., 2014; Carlson, Rappleeya, Daire, Harris, & Liu, 2017).

**Rationale and Significance of the Current Study**

Childhood adversity influences physical, mental, and relational health outcomes in adulthood (Felitti et al., 1998; McCarthy & Taylor, 1999; Umberson et al., 2014, 2016; Wheeler, 2017). Further, ACEs are associated with an absence of warmth and active engagement with parents, poor family functioning (Fergusson, Lysney, & Horwood, 1996), engagement in aggressive behavior, high-risk sexual activity, work absenteeism, and a shortened lifespan by up to 20 years (Felitti et al., 1998). Also, children who report the ACE of witnessing maternal IPV are more likely to become victims or perpetrators of IPV (Whitfield et al., 2003).

ACEs are also more prevalent among economically disadvantaged, racial and ethnic minority populations (Public Health Corporation, 2013). Further, economic hardship coupled with racial and ethnic minority status create social disadvantages and chronic stressors such as facing discrimination and being stigmatized (DuBois, Burk-Braxton, Swenson, Tevendale, Hardesty, 2002; Krieger, 2001). Disadvantaged populations also experience increased rates of family fragmentation, lower levels of familial support, and decreased levels of adult relationship health (Conger et al., 1999; Hummer et al., 2010; Karney et al., 2005). And, with Blacks and Hispanics experiencing the highest poverty rates (DeNavas-Walt et al., 2015), it is safe to deduce that they also experience lower quality and less satisfactory adult relationships (Umberson et al., 2014, 2016).
Further investigation is needed to better understand the relationship between ACEs and adult relationship health, as well as the specific processes that help explain this relationship for disenfranchised populations (McCarthy et al., 1999; Umberson et al., 2016; Wheeler, 2017). In the current study, participants’ yearly income ranged from $0.00 to $60,000.00, and the average yearly income was $13,968.19. Over 30% of participants reported an income of $0.00, and 81% reported an income below the U.S. federal poverty line (U.S. Census Bureau, 2018). I control for the influence of income and aim to identify other factors that affect adult relationship health outcomes for economically disadvantaged, racially and ethnically diverse individuals. I also examine the mediating effect of behavioral self-regulation to help explain the relationship between ACEs and adult relationship health for at-risk populations.

**Problem Statement**

Economically marginalized, racial and ethnic minorities face dire consequences as a result of experiencing childhood adversity. Consequences include high rates of family fragmentation, decreased family support, ineffective parenting practices, poor adult relationship health outcomes, chronic financial stress (Conger et al., 1999; Hummer & Hamilton, 2010; Karney & Bradbury, 2005), as well as physical, emotional, and behavioral health issues, and early death (Public Health Corporation, 2013). These socioeconomic disparities highlight issues of national and societal importance. I discuss these issues with particular attention to contextual stressors that negatively affect adult relationship health outcomes for economically marginalized, disadvantaged populations.

**Theoretical Perspective**

Childhood adversity is associated with a lifetime of economic hardship and poverty (Anda et al., 2004; Fang, Brown, Florence, & Mercy, 2012; Zielinski, 2009). Experiencing
abuse, neglect, and violence during childhood and adolescence negatively impact employment status and education levels in adulthood (Covey, Menard, & Franzese, 2013; Currie & Widom, 2010; Sansone, Leung, & Wiederman, 2012). Exposure to multiple ACEs also leads to poor work performance (Anda et al., 2004). Socioeconomic implications of ACEs can be viewed from a social determinants perspective which considers the conditions in which individuals are born into, grow up, age, reside, and work, and how they impact on a multitude of factors (Commission on Social Determinants of Health, 2008).

Koh et al. (2010) explain that an individual’s environment (i.e., conditions in which he or she is born, matures, lives, and works) may exist within a disadvantaged framework. A disadvantaged framework acknowledges disparities in sociodemographic status, geographic status, health outcomes, and exposure to risk factors. Sociodemographic status refers to individual characteristics (e.g., race and ethnicity, socioeconomic status, gender, age, disability status, sexual orientation). These characteristics determine subgroups that are at increased risk of suboptimal outcomes simply by being a member of a marginalized group. Geographic status refers to environmental and contextual characteristics of places where children reside (e.g., socioeconomically segregated communities, urban, or rural areas) which ultimately predisposes them to disadvantage. Next, health outcomes refer to the disproportionate rate that socially disadvantaged populations experience chronic medical conditions (e.g., cancer, cardiovascular disease, HIV/AIDS, diabetes, obesity, hepatitis, mental illness). Last, exposure to risk factors (e.g., substance abuse, diet and weight issues, vaccination status, high-crime communities, insurance status, sexual behavior, physical inactivity) as well as other adverse experiences predisposes children from disenfranchised groups to poor health and developmental outcomes. Koh et al. (2010) offer that disadvantaged populations experience disparities in all these domains.
which lead to multi-layered inequities. Accordingly, I utilize a social determinants theoretical perspective to conceptualize the relationship between ACEs and adult relationship health outcomes for economically disadvantaged, racially and ethnically diverse individuals.

**Overview of the Research Methodology**

I used a subset of archival pre-data collected during Project T.O.G.E.T.H.E.R. (To Offer Great Education That Harvests Enduring Relationships). Project T.O.G.E.T.H.E.R. (often referred to as “the Project”) was a large, federally funded research grant through the U.S. Department of Health and Human Services (HHS), Administration for Children and Families (ACF), Office of Family Assistance (OFA) (90-FM-0039-01-00). Project T.O.G.E.T.H.E.R. was conducted at the University of Central Florida’s Marriage and Family Research Institute (UCF MFRI) as well as other locations in the Central Florida region. Project staff utilized passive and active strategies to recruit eligible research participants (Carlson et al., 2014) from local community agencies (for e.g., health departments) that offered services to economically disadvantaged individuals, couples, and families.

Project T.O.G.E.T.H.E.R. offered individual and couple relationship education (RE), employment skills training (e.g. workforce development), case management, and brief individual and couples counseling to eligible participants. Project staff enrolled eligible participants in a 12-hour individual RE intervention, PREP (Prevention and Relationship Enhancement Program) Within My Reach (WMR). Eligible participants identified as single, or in a relationship yet attending the intervention without a partner. Project staff also enrolled eligible participants in a 12 to 15-hour couple RE intervention, PREP Within Our Reach (WOR) or Within Our Reach Plus (WOR Plus). Eligible participants identified as being in a relationship and attending the intervention with their partner. All enrolled participants received Walmart gift cards as incentives.

**Research Design**

The current study uses a non-experimental ex-post facto (i.e., causal-comparative) research design (Creswell, 2014; Fraenkel & Wallen, 2009; Heppner, Wampold, & Kivlighan, 2008). I utilized an associational research design to explore the relationships between ACEs (i.e., the pre-existing conditions not manipulated by the researcher), demographic factors (i.e., gender, race and ethnicity, and children status), behavioral self-regulation, approximated average individual yearly income, and adult relationship health. I also examined if demographic factors moderated the relationship between total ACEs scores and adult relationship health scores, and if behavioral self-regulation scores mediated the relationship between total ACEs scores and adult relationship health scores.

**Sampling criteria.** The current study utilized a convenience sample (Fraenkel et al., 2009) from Project T.O.G.E.T.H.E.R. Participants were primarily economically disadvantaged, racially and ethnically diverse individuals, at least 18 years old, and in a heterosexual couple relationship (i.e., in a committed relationship, engaged, or married). These individuals also participated in a couple RE intervention.

**Data collection.** Data used in the current study were collected during the fourth and final year of the Project from October 1, 2014 to September 29, 2015. Participants completed several self-report instruments including the Adult History Demographic Intake Form, Adverse Childhood Experiences (ACEs) Survey, Behavioral Self-Regulation for Effective Relationships Scale (BSRERS), and the Relationship Assessment Scale (RAS).
Analysis

Analysis includes preliminary analyses to determine sample sizes, errors in the data, missing data, outliers, and scales of measurement for study variables (Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2014). Preliminary analyses also determine if the data meet assumptions for parametric tests for each statistical analysis and include descriptive statistics to describe the sample (i.e., participants’ gender, age, race and ethnicity, educational attainment, employment status, approximated average yearly income, children and relationship status, and length of relationship). Descriptive statistics also provide distributional properties of study variables and include average scores and standard deviations for all instrumentation. Additional analyses include correlation analyses to understand the strength and direction of the relationships between study variables, Multivariate analysis of covariance (MANCOVA) for determining statistically significant between-group mean differences after controlling for the effect of a covariate (Hair, Black, Babin, Anderson, & Tatham, 2006; Tabachnick et al., 2014), and path analysis for testing a theory, determining goodness of fit for causal/predictive, moderator, mediator, and covariate variables, and explaining the relationships amongst observed or manifest variables (i.e., directly measured variables) which influence an outcome variable (Fraenkel et al., 2009; Keith, 2015; Tabachnick et al., 2014). I used SPSS 24 to conduct preliminary analyses, assumption testing, correlation analyses, and MANCOVA. I used Mplus 7.4 to conduct path analyses.

Research Questions and Hypotheses

Based on prior literature and theory (Wampold, Davis, & Good, 1990), the research questions and a priori hypotheses include:

1. What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average
individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals?

H1: There will be statistically significant relationships among total ACEs scores, adult relationship health scores, behavioral self-regulation scores, and approximated average individual yearly income.

H2: There will be statistically significant relationships among race and ethnicity, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

H3: There will be statistically significant relationships among gender, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

H4: There will be a statistically significant relationship between children status and adult relationship health scores.

Data analysis: Descriptive statistics, Correlation analyses

2. Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more?

H1: Individuals who indicate a total ACEs score of three or less will have significantly higher scores on behavioral self-regulation and adult relationship health compared to individuals who indicate a total ACEs score of four or more, who will have significantly lower scores on behavioral self-regulation and adult relationship health.

Data analysis: Multivariate analysis of covariance (MANCOVA)
3. Controlling for average yearly income, do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores?

H$_1$: Demographic factors will moderate the relationship between total ACEs scores and adult relationship health scores.

Data analysis: Moderation path analysis

4. Controlling for average yearly income, do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores?

H$_1$: Behavioral self-regulation scores will mediate the relationship between total ACEs scores and adult relationship health scores.

Data analysis: Mediation path analysis

**Definition of Study Variables and Key Terms**

Specific and measurable definitions of study variables and key terms are provided below.

**Study Variables**

**Adult relationship health.** An important component of relationship quality and stability is relationship satisfaction (Bradbury, 1995). Therefore, adult relationship health is defined and measured by relationship satisfaction.

**Adverse childhood experiences (ACEs).** ACEs include three components, child abuse (i.e., physical, emotional, and sexual abuse); child neglect (i.e., emotional and physical neglect); and dysfunction in childhood home (i.e., living with a parent or household member with mental illness, substance abuse issues, prior or current incarceration, divorced status, and/or exposure to maternal IPV (Felitti et al., 1998).

**Average yearly income.** Average yearly income of an individual. Calculated based on participants’ reported average individual monthly income.
**Behavioral self-regulation.** Behavioral self-regulation is defined by relationship self-regulation strategies and relationship effort (Wilson et al., 2005). Relationship self-regulation strategies are active, intentional behaviors that enhance the couple relationship. Relationship effort refers to actively attending to relationship needs as well as circumstances that affect relationship functioning. It also includes individual goal setting and consistent dedication to making individual changes that help improve the couple relationship.

**Demographic factors.** Participant’s gender, race and ethnicity, and children status (i.e., having no children/having at least one child over the age of 18, or having at least one child under the age of 18).

**Key Terms**

**Contextual stressors.** Case management needs (for e.g., childcare needs, transportation issues, inadequate housing etc.), and employment related issues (for e.g., being underemployed, facing barriers to achieving desirable employment, and having low job satisfaction).

**Individual and Couple Relationship Education (RE).** Relationship education (RE) includes preventive interventions (Stanley & Markman, 1998) offered in a group format with individuals or couples (Hawkins, Blanchard, Baldwin, & Fawcett, 2008). Individual and couple RE programs teach healthy communication, effective problem-solving and conflict resolution skills, and techniques that help individuals and couples broach deep-rooted relationship issues (e.g., commitment, expectations, finances, and forgiveness). Hawkins and colleagues (2008) found that RE increases relationship quality and satisfaction and decreases individual and relationship distress.

**Marginalized, disenfranchised, disadvantaged, and oppressed.** Marginalized refers to an individual or group of individuals who are excluded or shunned from society due to their
identity being considered less valuable by the dominant group (Johnson & Bonner, 2013). Marginalized individuals face multiple obstacles and stressors because of their disadvantaged status. The current study uses the terms marginalized, disenfranchised, disadvantaged, and oppressed interchangeably.

**Chapter Summary**

Dr. Vincent Felitti and Dr. Robert Anda, along with their colleagues at the Centers for Disease Control (CDC) and a Health Maintenance Organization (HMO) in San Diego, California, investigated ACEs (i.e., child abuse, child neglect, and household dysfunction) in a large-scale research study conducted in the mid to late 1990s (Anda et al., 2010; Felitti et al., 1998, 2010). This ground-breaking study revealed that ACEs were prevalent among a predominantly White, middle-aged, middle-class, educated sample. Researchers also found that ACEs were associated with chronic physical, mental, and interpersonal problems, risky sexual behavior, substance abuse, aggressive behavior, poor work performance, and early death.

Then, researchers explored ACEs in disadvantaged populations and expanded the context and understanding of childhood adversity (Giovanelli et al., 2016; Public Health Corporation, 2013; Wade et al., 2014, 2016). Examples of expanded ACEs include being exposed to community violence and criminal activity, experiencing discrimination and economic hardship, and growing up in a single-parent home. ACEs research with disenfranchised populations also revealed significantly higher prevalence rates of childhood adversity (Public Health Corporation, 2013), poor outcomes for children that spanned into adulthood (Barnett, 2014; Evans & English, 2002), and the heightened negative impact of socioeconomic disadvantage (Braveman & Gottlieb, 2014; Cambron, Gringeri, & Vogel-Ferguson, 2014; DeCarlo-Santiago, Wadsworth, & Stump, 2011; Giovanelli et al., 2016; Nurius, Logan-Greene, & Green, 2012; Slopen et al.,
Additionally, Wheeler (2017) studied economically disadvantaged, racially and ethnically diverse couples and discovered that the relationship between ACEs and chronic physical health issues was significantly explained by couple relationship quality.

Extensive research exists on adult relationship health outcomes for disenfranchised individuals (e.g., Bulanda & Brown, 2008; Charles et al., 2006; Conger, Rueter, & Elder, 1999; Hummer & Hamilton, 2010; Karney et al., 2005). However, these studies did not consider the distinct influence of multiple ACEs on adult relationship health outcomes. In fact, very few studies account for ACEs and its negative effects on adult relationship health outcomes in economically marginalized, disadvantaged populations (Umberson et al., 2014, 2016; Wheeler, 2017). Further, limited research exists on psychological processes (e.g., cognitive-emotive mechanisms), that mediate the relationship between ACEs and adult relationship health (McCarthy et al., 1999; Umberson et al., 2016). Disproportionate relationship health outcomes in economically marginalized, disadvantaged populations highlight the need to further investigate the effects of ACEs and the mechanisms through which ACEs exert its influence on adult romantic relationships.

Fortunately, there are interventions that improve adult relationship health outcomes for disenfranchised populations (Charles et al., 2006; Conger et al., 1999). For example, individual and couple RE improves relationship quality and overall well-being for low-income, racial and ethnic minority individuals and couples (Carlson et al., 2014, 2017; Hawkins et al., 2008; Stanley et al., 1998). RE topics include adaptive and maladaptive communication patterns, problem-solving and conflict resolution strategies, commitment and dedication, finances etc. These topics, among others, are presented and discussed in a group format with individuals and couples who hope to improve their relationships.
I utilized a subset of archival pre-data collected during the fourth year of Project T.O.G.E.T.H.E.R. Data were from economically marginalized, racially and ethnically diverse individuals enrolled in a 12 to 15-hour couple RE intervention. I used a social determinants perspective (Commission on Social Determinants of Health, 2008; Koh et al., 2010) to conceptualize the relationship between ACEs and adult relationship health outcomes, as well as the factors that moderate and mediate this relationship. A non-experimental ex-post facto research design was utilized (Creswell, 2014; Fraenkel et al., 2009; Heppner et al., 2008), and participants completed several self-report instruments. Research questions include: 1) What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals? 2) Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more? 3) Controlling for average yearly income, do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores? 4) Controlling for average yearly income, do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores? Data analysis includes preliminary analyses, descriptive statistics, correlation analyses, MANCOVA, and path analysis.
CHAPTER TWO: LITERATURE REVIEW

This chapter provides a review of the literature on adverse childhood experiences (ACEs), and adult relationship health outcomes in ethnically and racially diverse, economically marginalized, and low-income populations. Further, I highlight factors such as gender, race and ethnicity status, children status, and behavioral self-regulation, which potentially influence adult relationship health outcomes. I then discuss individual and couple relationship education, an effective intervention that improves adult relationship health outcomes for at-risk populations. I note the limitations in the existing literature and state how the current study fills the research gap. I conclude with a summary of the chapter.

The Adverse Childhood Experiences Study

The Adverse Childhood Experiences Study (ACEs Study) was a seminal, large-scale, life-span study conducted from 1995 to 1997 by two physicians, Dr. Vincent Felitti and Dr. Robert Anda, and their colleagues (Felitti et al., 1998). These researchers defined ACEs as adversity faced before the age of 18. Adverse experiences included childhood physical, sexual, and emotional abuse, childhood neglect, and living with a household member who was mentally ill, incarcerated, victimized by maternal IPV, or a substance abuser. The ACEs study examined relationships between these experiences, adult health behaviors and outcomes, and the impact of underlying, chronic, multigenerational social and health effects of interrelated ACEs on overall wellbeing.

The ACEs study was funded by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente Health Appraisal Center in San Diego, California (Felitti et al., 1998). Over 26,800 patients from the Kaiser Permanente Health Maintenance Organization (HMO) Health Appraisal Center were recruited to participate in the study. Each patient received a
thorough physical examination and completed psychosocial evaluations. Patients also completed a standardized health questionnaire which asked detailed information about their current health status, health-related behaviors from adolescence to adulthood, and health history. The health history portion of the questionnaire included dichotomous screening questions about childhood adversity, such as “Were you ever raped or molested as a child?” (Edwards et al., 2001). ACEs researchers then mailed a confidential detailed questionnaire (i.e., the ACEs survey) to all patients who completed the standardized health questionnaire.

Data were collected from the ACEs survey in two waves (Wave I and Wave II). The Wave I survey conducted from August to November of 1995 and from January to March of 1996 had a 70.5% response rate (9,508 of 13,494 participants), and the Wave II survey conducted from June to October of 1997 had a 65% response rate (8,667 of 13,330 participants) (Anda et al., 1999; Edwards et al., 2001; Felitti et al., 1998). The final sample included over 18,000 individuals who primarily identified as White, middle-aged, educated, and middle-class.

ACEs survey response rates led Edwards et al. to investigate response bias. ACEs researchers had health histories and demographic data for all patients who completed the standardized health questionnaire. These patients either responded or did not respond to the ACEs survey. Using Wave I data, researchers compared the health histories of respondents and non-respondents to the ACEs survey. Correlational analyses of the relationship between childhood sexual abuse and multiple health behaviors, illnesses, and psychosocial issues (indicated on the health history questionnaire) yielded equivalent results for respondents and non-respondents to the ACEs survey. Further, logistic regression analyses adjusted for demographic differences between groups indicated that respondents and non-respondents to the ACEs survey experienced strikingly similar physical, emotional, and relational health problems.
in adulthood. These findings support the claim of absence of response bias in that respondents were not more likely than non-respondents to attribute health or psychosocial issues to ACEs.

The ACEs study (both Waves I and II) revealed the prevalence of childhood adversity, with the most common adversities being: experiencing emotional, physical, or sexual abuse; witnessing maternal IPV; and residing with a household member who abused substances, suffered from mental illness, was suicidal, and/or was imprisoned (Felitti et al., 1998).

Researchers also calculated a total ACEs score by summing the individual number of ACEs a participant experienced. Total ACEs scores ranged from zero to 10, with zero indicating no childhood adversity and higher numbers indicating more exposure to adverse experiences. Over 50% of study participants indicated at least one ACE, 25% indicated two ACEs, about 6% indicated four or more ACEs, and approximately 66% of female participants indicated at least one ACE related to abuse, violence, or family conflict.

**Negative Outcomes Associated with ACEs**

The findings of the ACEs study revealed a strong graded dose-response relationship between types of ACEs and multiple health and social problems across the lifespan (Felitti et al., 1998). A strong graded dose-response relationship means there is a positive correlation between exposure to ACEs and risks of experiencing physical, mental/emotional, and relational health problems. As exposure (or doses) to ACEs increases, the risk of negative outcomes also increases. For example, participants who indicated four or more ACEs were 12 times more likely to report a past suicide attempt, 10 times more likely to engage in intravenous drug use, 7 times more likely to use alcohol, and 1.4 times more likely to report severe obesity and diabetes compared to participants with a total ACEs score of zero. These participants were also more likely to engage in high-risk sexual behaviors (i.e., having numerous sexual partners, becoming
pregnant as a teen, being raped, and contracting a sexually transmitted disease), report psychosocial problems (i.e., depression), demonstrate low productivity at work, and have an early death (Felitti et al., 1998).

ACEs are linked to several top leading causes of death and disability, including heart disease, lung cancer, diabetes, autoimmune diseases etc. (Anda, Butchart, Felitti, & Brown, 2010; Felitti & Anda, 2010; Felitti et al., 1998; Ward, Schiller, & Goodman, 2014). These and other chronic health issues cost the U.S. economy over $1 trillion a year in treatment costs and loss of productivity due to work absences (DeVol et al., 2007). ACEs also lead to impaired brain functioning and poor mental health. The Child Welfare Information Gateway (2015) reported that areas in the brain responsible for cognitive functioning (for e.g., short-term memory), higher order executive functioning, and emotion regulation are negatively impacted by ACEs. Mental health issues such as anxiety, post-traumatic stress disorder (PTSD), and depression are also related to ACEs (Felitti et al., 1998; Johnson, Riley, Granger, & Riis, 2013; Public Health Management Corporation, 2013; Shonkoff & Garner, 2012). Further, women who often witnessed maternal IPV as a child were significantly more likely to experience other ACEs, and subsequently reported depression and substance use in adulthood (Dube, Anda, Felitti, Edwards, & Williamson, 2002).

Additionally, childhood adversity such as physical or emotional abuse along with punitive parenting, lead children to develop deviant ways of processing their interpersonal experiences (Bradbury & Fincham, 1992; Dodge, Pettit, Bates, & Valente, 1995). Their maladaptive way of thinking oftentimes results in aggressive behavior and problematic romantic relationships later in life. Specifically, these children frequently over-attributive aggressive intentions to the behavior of others, and when this mentality persists into adulthood, problems
are likely to arise in intimate relationships. For example, problems ensue when an individual views his or her partner’s negative behavior as intentional and thus worthy of blame and reprisal. Another example is when husbands, who are physically abusive, attribute negative intentions, self-centeredness, and culpability to their wife’s behavior and are physically violent toward them as a result (Holtzworth-Monroe & Hutchinson, 1993).

ACEs and IPV. Children are born with an innate inclination to develop relationships and attachments with others (De Bellis, 2001). However, when children are abused, neglected, and/or traumatized they become suspicious and fearful of relationships, making healthy relationships difficult to establish in the future. Researchers link childhood adversity to increased risk of divorce (Font & Maguire-Jack, 2016), and increased likelihood of IPV perpetration and victimization (Brown, Perera, Masho, Mezuk, & Cohen, 2015; Cold et al., 2001; Mair, Cunradi, & Todd, 2012; Swopes, Simonet, Jaffe, Tett, & Davis, 2013; Whitfield et al., 2003).

In a landmark study using data collected from 8,629 participants from the original ACEs study, Whitfield et al. (2003) examined the relationship between men’s and women’s exposure to violent ACEs and adult relationship outcomes. Violent ACEs included experiencing physical and sexual abuse and witnessing maternal IPV. Results indicated a statistically significant positive graded relationship between the number of violent or abusive experiences in childhood and the increased probability of IPV victimization for women and IPV perpetration for men. Women who reported all three forms of violent ACEs were 3.5 times more likely to be IPV victims, and men were 3.8 times more likely to be IPV perpetrators compared to participants who indicated no exposure to violence in their childhood. Similarly, Cold et al. (2001) found that adult women who were physically and sexually abused as children were significantly more likely to be adult victims of IPV.
Additionally, Brown et al. (2015) studied sex differences and mediators of the relationship between ACEs and IPV. Potential mediators included depression, PTSD, and substance use disorder. Results indicated that depression did not mediate the relationship between ACEs and IPV for either men or women. However, for men, the relationship between childhood sexual abuse and IPV was partially mediated by PTSD. PTSD was a significant underlying factor that helped partially explain how childhood sexual abuse influenced IPV in adulthood. Also, for men and women, the relationship between childhood physical and emotional abuse and IPV was fully mediated by substance abuse. Substance abuse strongly predicted and completely explained how childhood physical and emotional abuse influenced IPV in adulthood.

In another study, Swopes et al. (2013) explored the relationships between ACEs, symptoms of PTSD, emotional intelligence, and IPV among 108 male IPV offenders. Results showed that PTSD mediated (i.e., explained) the relationship between ACEs and IPV, particularly when emotional self-regulation and reasoning capacity were low.

Lastly, a study utilizing couple data examined the extent to which psychosocial issues such as anxiety, depression, impulsive behavior, and alcohol abuse mediated the relationship between ACEs and IPV (Mair et al., 2012). Findings revealed significant positive direct relationships between ACEs and anxiety, depression, and impulsive behavior for both male and female partners. Anxiety and impulsive behavior reported by males and depression reported by females positively correlated with male to female partner violence, and depression and alcohol abuse reported by males and depression reported by females positively correlated with female to male partner violence. Depression also explained the relationship between male ACEs and male to female partner violence, and anxiety and impulsive behavior explained the relationship between male ACEs and female to male partner violence. Moreover, depression explained the
relationship between female ACEs and male to female partner violence and female to male partner violence.

These studies align with the cycle of violence theory which postulates that patterns of violence and/or maltreatment experienced during childhood will likely repeat during adulthood (Reckdenwald, Mancini, & Beauregard, 2013). Ongoing research addressing the link between ACEs and IPV, a significant public health issue in the United States (U.S.), is warranted (Brown et al., 2015). Identifiably, ACEs are associated with challenges to establishing healthy and supportive relationships in adulthood (McCarthy & Taylor, 1999; Felitti et al., 1998; Whitfield et al., 2003). Thus, further research is also needed to better understand the significant negative relationship that exists between ACEs and overall adult relationship health (Reyome, 2010), particularly within the context of economic disadvantage (Wheeler, 2017).

ACEs, Adult Relationship Health, and Inequities among Disadvantaged Populations

The Public Health Corporation (2013) replicated the ACEs study in several urban communities in Philadelphia. The Philadelphia Urban ACEs Study included racially and ethnically diverse individuals who graduated from high school and had varied income levels. This study assessed for additional potential ACEs, such as experiencing community violence and discrimination. These experiences were not included in the original ACEs study. Results indicated that approximately 67% of study participants reported at least one ACE, 37% reported four or more ACEs, and approximately 33% reported experiencing community violence and discrimination. Experiencing community violence and discrimination were also found to have negative health implications. Another study, funded through the National Institute of Child Health and Human Development (NICHD) and the National Science Foundation (NSF), examined ACEs and overall adult well-being in 1,202 low-income, racially diverse individuals
from Chicago (Giovanelli et al., 2016). Findings revealed that approximately 66% of participants experienced one or more ACEs. Participants who experienced four or more ACEs held less skilled jobs, were significantly less likely to graduate high school, and were more likely to be depressed, to engage in high-risk health behaviors, to be arrested as a juvenile, and to acquire felony charges.

Additionally, Wade et al. (2014) used focus groups to study low-income urban young adults in Philadelphia. This study expanded the original understanding and categorization of ACEs. Focus group participants identified adversities they experienced throughout their childhood, including familial and peer relationship issues, community stressors, personal victimization, exposure to violence and criminal behavior, involvement with the child welfare and juvenile justice system, and growing up in a single-parent home. Participants also identified discrimination, financial hardship, health issues, and problems at school (for e.g., bullying) as childhood adversities they experienced. Interestingly, these young adults did not perceive parental divorce or separation and parental mental illness as adverse experiences.

Next, Wade et al. (2016) explored the relationship between conventional and expanded ACEs and health outcomes in 1,784 racially and socially diverse adults from urban areas in Philadelphia. Conventional ACEs were negative experiences related to family-level dysfunction in the childhood home (i.e., the original ACEs items except having a divorced or separated parent). Having a divorced or separated parent was omitted in this study because Wade et al. (2014) discovered that the term “single parent home,” not divorce or separation, was used by participants to describe their fragmented family structure. Expanded ACEs were community-related negative experiences (i.e., residing in dangerous neighborhoods, experiencing discrimination and racism, being exposed to violence, being bullied, and being in the foster care
system). Higher conventional ACEs scores (i.e., 4 or more) were significantly related to risky health behaviors and physical and mental health issues, and higher expanded ACEs scores (i.e., 3 or more) were significantly related to a history of substance abuse and sexually transmitted diseases. Further, socioeconomic status (SES) moderated the ACEs to health relationship, highlighting the multifaceted relationship between poverty and ACEs.

Slopen et al. (2016) examined income levels in relation to racial disparities in ACEs. Results indicated a pattern of exposure to childhood adversity influenced by race, ethnicity, and income for White, Black, and Hispanic children of US-born and immigrant parents. Black and Hispanic children reported more ACEs than White children; however, income differences were more predictive of ACEs exposure. Children who grew up in poor households were exposed to ACEs approximately three times more than children who grew up in higher-income households. Specifically, poor Black and Hispanic children were 2.3 and 2.9 times more likely than higher-income Black and Hispanic children to report exposure to ACEs, and poor White children were 4.7 times more likely than higher-income White children to report exposure to ACEs. Also, after controlling for income, a disparity in ACEs exposure still existed among children of US-born parents; no disparities existed among children of immigrant parents. Race and ethnic disparities in ACEs exposure were most prevalent among children from families with high-income. As income increased, distinct racial and ethnic disparities in ACEs exposure also increased, specifically between Black and White children from high-income homes, and between Hispanic and White children from high-income homes.

Next, Font and Maguire-Jack (2016) studied the relationships between ACEs, social and economic factors in adulthood (i.e., level of education and income, being married, divorced, or separated, and insurance status), and adult health outcomes (i.e., depression, obesity, tobacco use,
alcohol abuse, and self-reported poor health) in over 29,000 participants. Results showed that social and economic factors mediated the relationship between ACEs and adult health outcomes, especially when number of ACEs were high. Moreover, social and economic factors in adulthood primarily explained the relationship between three ACEs (i.e., being exposed to maternal IPV, having a divorced parent, and living with a household member who was previously incarcerated) and poor adult health outcomes. In contrast, although a significant relationship existed between other ACEs (i.e., physical, emotional, and sexual abuse) and adult health outcomes, social and economic factors did not explain much variance in this relationship.

Lastly, Nurius et al. (2012) highlighted that the repeated, co-occurring nature of socioeconomic disadvantage compounds the negative effects of ACEs on marginalized populations. These researchers used a social disadvantage lens to explore the relationship between ACEs, socioemotional support, and adult mental health outcomes. Results indicated a sustained, negative impact of ACEs on adult mental health outcomes regardless of socioeconomic and demographic factors. However, social disadvantage (i.e., lack of socioemotional support and personal and social resources) significantly moderated the relationship between ACEs and adult mental health. Researchers further noted that the heightened effects of ACEs for marginalized populations may have been masked due to the positive and moderating effect of protective factors such socioemotional support and personal and social resources.

**Adult relationship health in disadvantaged populations.** Low-income individuals face several environmental and contextual stressors that negatively influence individual and relationship functioning (Carlson, Daire, & Bai, 2014; Conger, Conger, & Martin, 2010; Karney & Bradbury, 2005). Several studies have investigated adult relationship health outcomes in
economically marginalized, disadvantaged populations (Bulanda & Brown, 2008; Charles et al., 2006; Conger et al., 1999; Hummer & Hamilton, 2010). First, Bulanda et al. (2008) found that Black married couples reported lesser satisfying relationships and higher incidences of divorce compared to White couples. Also, Conger et al. (1999) studied over 400 married couples and found that financial hardship increased the risk of emotional distress, which then led to heightened risk of marital conflict and eventual marital distress. Further, increased marital support moderated the relationship between financial hardship and emotional distress, and adaptive conflict resolution strategies moderated the negative effect of marital conflict on marital distress. Next, Charles et al. (2006) examined the impact of economic status and relationship factors on couple relationship functioning among 95 low-income, African-American and White adults. They found that economic disadvantage was associated with higher levels of relationship dissolution and lower levels of emotional support.

Further, the seminal longitudinal Fragile Families and Child Wellbeing study examined fragile families in the U.S. (Hummer & Hamilton, 2010). The term “fragile families” was assigned to children and their unmarried parents (i.e., approximately 5,000 children where about 75% of them were born to unmarried parents). Compared to intact families, fragile families were more at risk for family fragmentation and poverty, and substantial differences existed in the pervasiveness of fragmented families among racial and ethnic minority groups. Black and Hispanic Americans had the highest rate of family fragmentation and poverty, Asian Americans had the lowest, and White Americans fell in the middle of the spectrum. Social and economic differences primarily explained racial and ethnic disparities in marriage and family stability. Further, adult relationship health outcomes were particularly dire for Black mothers who had the lowest marriage rates, highest relationship dissolution rates, and were less likely to cohabitate
compared to White and Hispanic mothers. In addition, despite living in extreme poverty, Hispanic immigrant families had the highest marriage and cohabitation rates. However, these high rates disappeared in succeeding generations due to assimilation. Moreover, racial and ethnic disparities existed in access to resources and education level. White mothers reported more social and economic support than Black and Hispanic mothers, and Black and White mothers were likely to graduate high school while Hispanic mothers were less likely (Hummer et al., 2010). These studies highlighted significant adult relationship health disparities, however the influence of a wide array of childhood adversities was not considered.

**ACEs and adult relationship health in disadvantaged populations.** Very few studies to date investigated the extent to which ACEs influence adult relationship health outcomes (independent of IPV) in disadvantaged populations. One study examined the relationships between ACEs, social relationships, and physical health outcomes in racial and ethnic minority individuals (Umberson et al., 2014). These researchers used data from Americans’ Changing Lives, a nationally representative study including 3,477 participants. Researchers postulated that childhood adversity contributed to perpetual disadvantage in relationships across the lifespan, which led to negative health outcomes over time. Results indicated that conventional ACEs and expanded ACEs (for e.g., childhood economic hardship) were linked to decreased support and increased stress and strain in adult relationships. Further, Black participants experienced significantly lesser satisfying relationships (i.e., less support and more stress and strain) and poorer health outcomes compared to White participants. This finding was particularly salient for Black men who reported 28% more exposure to ACEs than White men. In fact, the negative influence of ACEs on adult relationship quality was threefold for Black men. Black men’s increased exposure to childhood adversity strongly explained poor physical and relationship
health outcomes over time. On the other hand, women’s stress in adulthood was more impactful than ACEs in explaining the relationship between race and poor physical health.

Then, Umberson et al. (2016) conducted a qualitative study to investigate racial disparities in the relationship between ACEs and men’s relationship health over time. Researchers conducted thorough interviews with 15 Black men and 15 White men, and examined psychosocial and behavioral coping mechanisms developed in childhood in response to ACEs. Umberson and colleagues also explored the extent to which these coping mechanisms explained the relationship between ACEs and strained relationships in adulthood with partners and children. Results indicated that Black men experienced more intense and chronic ACEs compared to White men. ACEs also negatively influenced psychosocial coping responses in childhood (e.g., feeling a decreased sense of mastery), which potentially led to unhealthy coping responses to stress and adversity in adulthood (e.g. substance abuse). Consequently, unhealthy coping in adulthood negatively impacted adult relationship quality and satisfaction. Finally, this study highlighted that psychosocial and behavioral responses serve as mechanisms through which ACEs exert their influence on adult relationship health outcomes (Umberson et al., 2016).

More recently, Wheeler (2017) investigated the relationship between ACEs, couple relationship quality, and physical health outcomes in 503 economically disadvantaged, racial and ethnic minority heterosexual couples who participated in couple relationship education (RE). Approximately 77% of the couples identified with a racial or ethnic minority status. Wheeler defined couple relationship quality using three components, behavioral self-regulation (i.e., relationship self-regulation strategies and relationship effort) and relationship satisfaction. Results indicated a significant, yet small, inverse relationship between ACEs and couple relationship quality (i.e., higher total ACEs scores correlated with lower couple relationship
quality). Further, couple relationship quality explained approximately 82% of the variance in health outcomes for men and about 57% of the variance in health outcomes for women. This study’s overall findings indicated that a high total ACEs score led to low couple relationship quality, and low couple relationship quality led to poor physical health outcomes.

**Why it matters and the government’s response.** Adults who experienced childhood adversity may find it difficult to establish and maintain healthy relationships (De Bellis, 2001, Reckdenwald et al., 2013; Whitfield et al., 2003). Previously discussed studies highlighted the high prevalence of IPV perpetration and victimization among individuals exposed to ACEs (Brown et al., 2015; Cold et al., 2001; Mair et al., 2012; Swopes et al., 2013; Whitfield et al., 2003). For example, women who experienced childhood physical and sexual abuse and witnessed maternal IPV were 3.5 times more at-risk for being victims of IPV, and men were 3.8 times more at risk for being perpetrators of IPV (Whitfield et al., 2003). Also, when a woman is victimized by IPV her physical and emotional functioning are negatively impacted, and her children become more at-risk for abuse, neglect, and other traumatic events (Dube et al., 2002).

Additionally, increased exposure to ACEs is associated with economic disadvantage (Cambron et al., 2014). In fact, the negative relationship between childhood adversity and adult relationship health outcomes is particularly dire for economically marginalized, disadvantaged populations (Wheeler, 2017). Further, contextual circumstances such as social class, access to resources, external/environmental stressors, and income level either enhance or hinder healthy relationships (Conger, Conger, & Martin, 2011; Karney & Bradbury, 2005). For instance, poor adult relationship health was noted in studies of couple resilience in response to economic hardship (Conger et al., 1999; Masarik, Martin, Ferrer, Lorenz, Conger, & Conger, 2016). Financial stress and strain increased the risk of marital conflict, emotional and marital distress,
and overall low relationship quality. Masarik et al. (2016) added that financial hardship predicted increased hostility, contempt, and anger in the couple relationship. Further, less adaptive problem-solving strategies and behaviors in response to financial strain contributed to steep increases in hostility in the couple relationship.

Multiple studies have examined the impact of financially strained and economically disadvantaged households on children’s wellbeing. When children grow up in economically stressed households they become more susceptible to social, behavioral, and emotional problems (Barnett, 2014; Evans & English, 2002), such as insecure attachments in future relationships (Lyons-Ruth, Easterbrooks, & Cibelli, 1997), psychiatric disorders (Costello, Keeler, & Angold, 2001; Evans et al., 2002), interpersonal difficulties (Bolger, Patterson, Thompson, & Kupersmidt, 1995), reduced self-regulation, and increased physiological responses to stress (Evans et al., 2002). These negative child outcomes are due, in part, to less sensitive and attentive parenting in response to chronic stress and emotional distress (i.e., depression, anxiety, and feelings of frustration and anger) associated with facing poverty and economic hardship (Aber, Jones, & Cohen, 2000; Magnuson & Duncan, 2002; Pettersson & Albers, 2001).

Similarly, Hummer et al. (2010) highlighted that adversities and other hardships are intensified when children come from low-income, disenfranchised populations. Children from racial and ethnic minority groups are more likely to report the ACE of having a divorced or separated parent, and thus are more likely to live in poverty. Furthermore, a fragmented home stricken by poverty creates socioeconomic challenges that make it difficult for a single-parent to establish a healthy relationship (Conger et al., 2010; Karney et al., 2005). Also, children who grow up in these homes are less likely to experience supportive and stable adult relationships (Umberson et al., 2014). Dire relationship outcomes are most prevalent among Blacks and
Hispanics who report the highest rates of family and relationship fragmentation and live in poverty at alarming rates (DeNavas-Walt & Proctor, 2015; Hummer et al., 2010; Umberson et al., 2014). These disparities in family and relationship stability present issues of national and societal importance requiring immediate attention and intervention.

Family fragmentation and poor adult relationship health outcomes cost the federal, state, and local government over $112 billion a year (Scafidi, 2008). This cost also includes lost tax revenue. The U.S. Department of Health and Human Services, Administration for Children and Families aimed to decrease these costs by funding several initiatives across the U.S. Some of the initiatives included Stronger Marriages and Stronger Families and Supporting Healthy Marriages. These federally funded projects targeted disadvantaged populations and aimed to improve family and relationship outcomes.

Other Influential Factors of Adult Relationship Health

Multiple factors influence adult relationship health outcomes. Studies reveal moderating effects of gender, race and ethnicity, and children status, as well as mediating effects of behavioral self-regulation.

**Gender.** Research findings are inconsistent regarding the extent to which gender moderates relationship quality and satisfaction. Some studies found that women consistently felt less satisfied with their marriages compared to men (Amato et al., 2007; Rogers & Amato, 2000; Stevenson & Wolfers, 2009), while other studies reported that women experienced higher satisfaction levels in their marriage compared to men (King, 2005), or even equal levels of satisfaction (Karney & Bradbury, 1995). Additionally, data from two large national surveys (i.e., The American Changing Lives Survey and The National Study of Families and Households)
indicated no significant gender differences in marital quality and satisfaction (Broman, 2005; Gager & Sanchez, 2003).

Next, a recent meta-analysis of 226 independent samples totaling 101,110 participants showed statistically significant, yet small, gender differences in relationship satisfaction between husbands and wives (Jackson et al., 2014). Wives reported slightly less satisfaction than husbands; however, further moderator analyses revealed that this difference only existed in clinical samples. Wives attending marriage counseling with their husbands were 51% more likely to feel dissatisfied in the couple relationship. Nonclinical community-based samples showed no significant gender differences in relationship satisfaction. Further, dyadic data analyses of husband-wife dyads revealed no significant gender differences in relationship satisfaction.

**Race and ethnicity.** Marginalized populations experience contextual stressors that negatively impact adult relationship quality and satisfaction (Carlson et al., 2014; Conger et al., 1999, 2010; Karney & Bradbury, 2005; Hummer & Hamilton, 2010; Masarik et al., 2016; Wheeler, 2017). These studies highlight the prevalent contextual stressor of financial hardship and discuss its adverse impact on adult relationship health outcomes for oppressed individuals and couples. Further, Umberson et al. (2014) added gender to the intersection of race and ethnicity and economic status. Results showed that Black women and mothers facing financial hardship experienced the lowest relationship quality. Also, findings from The Fragile Families and Child Wellbeing Study indicated that individuals from racially and ethnically diverse backgrounds were more likely to live in extreme economic hardship and poverty and have less access to resources. Blacks and Hispanics reported the poorest relationship and family outcomes, with Black mothers experiencing the highest rate of family fragmentation and dissolved intimate relationships. Lastly, even though Hispanics reported higher rates of marriage and family
stability than Blacks, these rates steadily decreased in subsequent generations due to assimilation (Hummer & Hamilton, 2010).

**Children status.** Studies yield inconsistent results with regards to the moderating effect of children status on adult relationship health outcomes. A meta-analysis revealed that married couples with children experienced less relationship satisfaction than married couples without children (Twenge et al., 2003). Additionally, a significant inverse relationship existed between marital satisfaction and number of children. Differences in relationship satisfaction were most salient for mothers of infants. Specifically, only 38% of mothers of infants reported high relationship satisfaction compared to 62% for women with no children. On the other hand, men’s relationship satisfaction levels did not vary according to the age of the child(ren). Overall findings indicated that parenting children significantly lowered women’s relationship satisfaction levels. Lower relationship satisfaction was due, in part, to conflict surrounding parental roles and responsibilities.

Another meta-analysis examined changes in relationship satisfaction for couples as they transitioned to parenthood (Mitnick et al., 2009). The meta-analysis included 37 studies that tracked couples from pregnancy to after the first child was born, and four studies that tracked newlywed couples who did not have children initially and then compared couples who became parents with couples who did not become parents. Results indicated significant, yet small, declines in relationship satisfaction for both partners of the couple from pregnancy to 11 months after the child’s birth. Also, moderate declines in relationship satisfaction occurred for couples at the 12-14 month follow up. However, Mitnick et al. highlighted that the transition to early parenthood may not uniquely influence relationship satisfaction since newlyweds who did not
become parents and newlyweds who became parents experienced similar reductions in relationship satisfaction over time.

Additionally, a recent cross-sectional study investigated the influence of parenthood, number of children, and age of child(ren) on relationship satisfaction among individuals in a romantic relationship (Meyer et al., 2016). Findings revealed that individuals with no children experienced higher relationship satisfaction and couple cohesion and expressed affection more frequently than individuals with two or three children. Further, among individuals with children, those with a child aged 8 through 12 reported the highest relationship satisfaction levels. This finding postulates that couples may experience less relationship distress as children get older.

I created two children status groups (i.e., having no children/having at least one child over the age of 18, or having at least one child under the age of 18). Research indicates that relationship satisfaction is higher for couples who do not have children or who have older children, while relationship satisfaction is lower for couples who have young children, especially infants (Meyer et al., 2016; Mitnick et al., 2009; Twenge et al., 2003). Parenting children and establishing parental roles and responsibilities, particularly during early parenthood years, negatively influence relationship satisfaction (Mitnick et al., 2009; Twenge et al., 2003).

Behavioral self-regulation. Behavioral self-regulation includes two domains, relationship self-regulation strategies and relationship effort (Wilson et al., 2005). Wilson et al. studied 284 newlywed couples and 61 long-married couples and found that behavioral self-regulation accounted for 25% of the variance in relationship satisfaction. Specifically, self-regulation strategies influenced women’s relationship satisfaction the most, and relationship effort influenced men’s relationship satisfaction the most. This finding highlights gender differences in the influence of behavioral self-regulation on relationship satisfaction and that the
level of behavioral self-regulation one exhibits influences the level of relationship satisfaction one experiences. Further, dyadic data analyses indicated that behavioral self-regulation of both members of a couple dyad explained 27 to 29% of the variance in relationship satisfaction for males and females respectively.

More recently, Shafer et al. (2014) used existing data from 8,006 individuals who completed the Relationship Evaluation Survey. This survey is an online assessment tool that uses a Likert scale (i.e., 1 = low satisfaction to 5 = high satisfaction) to evaluate possible areas of conflict in couple relationships. Individuals were primarily White (81%), females (62%), with an average age of 31 years old. Researchers investigated the relationship between relationship effort (i.e., a domain of behavioral self-regulation), relationship satisfaction (e.g., quality time, communication patterns, and overall level of satisfaction), and relationship stability (e.g., frequency of desires or conversations about ending the relationship) across four different relationship statuses. Relationship statuses included first-time married, cohabitating with no history of marriage, cohabitating and divorced, and second-time married. Multiple regression analyses revealed a significant and positive relationship between relationship effort and relationship satisfaction for first-time married individuals and cohabitating and divorced individuals. Also, there was a significant, positive relationship between relationship effort and relationship stability for second-time married and first-time married individuals. Overall findings indicated a positive relationship between relationship effort and relationship satisfaction and stability, and this positive relationship existed regardless of relationship status.
Individual and Couple Relationship Education: Interventions Improving Adult Relationship Health Outcomes for Disadvantaged Populations

Accessible evidence-based preventive interventions are necessary to address the multiple chronic effects of ACEs (Giovanelli et al., 2016) on adult relationship health outcomes in disadvantaged populations. ACEs are linked to heightened risk of IPV in adulthood (Mair et al., 2012; Whitfield et al., 2003), and overall poor-quality adult relationships (Umberson et al., 2014, 2016). However, when adults who experienced childhood adversity and trauma have access to resources such as community support, and supportive and emotionally safe relationships the long-lasting impacts of childhood adversity and trauma are reduced (Child Welfare Information Gateway, n.d.; Madsen & Abell, 2010).

Further, economically marginalized, disadvantaged populations face childhood adversity at increased rates, and experience poorer adult relationship health outcomes (Umberson et al., 2014, 2016; Wheeler, 2017). Still, relationship health outcomes for economically marginalized, disadvantaged adults can improve once they have access to employment assistance, fatherhood and parenting programming, couples counseling, financial security resources, and relationship skills training (Charles et al., 2006; Conger et al., 1999). These resources and interventions are helpful in effectively navigating stressors related to poverty and family and relationship fragmentation (Charles et al., 2006; Conger et al., 2011; Karney et al., 2005).

Relationship skills training such as individual and couple relationship education (RE) are preventive (Hawkins et al., 2008; Stanley et al., 1998), and acknowledge the deleterious impact of financial hardship on relationship health and aim to improve relationship health outcomes for disadvantaged individuals and couples (Karney et al., 2005). RE is primarily offered in groups of individuals or couples, and they learn about effective communication, healthy problem-solving,
effective conflict resolution, and adaptive ways to discuss deep-rooted, core issues such as commitment, relationship expectations, forgiveness, and finances (Hawkins et al., 2008; Stanley et al., 1998). Hawkins and colleagues discovered that individual and couple RE helps increase relationship quality and satisfaction and decrease levels of individual and relationship distress. RE programs also show particularly positive outcomes for low-income, racially and ethnically diverse populations (Barden et al., 2015; Carlson, Barden, Daire, & Swartz, 2014; Carlson et al., 2014).

**Limitations of Existing Literature**

Only three studies to date explore the relationship between ACEs and adult relationship health outcomes (independent of IPV) for low-income, economically disadvantaged, marginalized populations. These studies have limitations and create opportunities for future research. For example, Umberson et al. (2014) focused on social relationships among a sample of Black and White adults. This study did not exclusively examine adult romantic relationships or include individuals from other racial and ethnic minority groups. Next, Umberson et al. (2016) examined racial differences in men’s adult relationships with their romantic partners and children. Similarly, this study only included Black and White participants. Also, researchers focused on psychosocial and behavioral mechanisms utilized in childhood, not adulthood, to help explain the relationship between ACEs and men’s relationships.

More recently, Wheeler (2017) tested couple relationship quality as a dyadic mediator of the relationship between ACEs and physical health issues. This study utilized a predominantly economically disadvantaged, racial and ethnic minority sample of couples, however racial and ethnic minority status was not included in the mediator model. Therefore, differences between specific racial and ethnic minority groups (e.g., non-Hispanic Blacks or Hispanic Whites) were
not explored. Additional research is needed to better understand the significant negative relationship between ACEs and adult relationship health (Wheeler, 2017), as well as the factors that moderate and mediate this relationship (McCarthy et al., 1999; Umberson et al., 2016) for low-income, economically disadvantaged, marginalized populations.

The Current Study

The current study addresses the need for further research by examining the relationship between childhood adversity and adult relationship health (i.e., level of relationship satisfaction) in a sample of economically marginalized, racially and ethnically diverse men and women. The current study includes moderating factors of gender, race and ethnicity, and children status, a mediating factor of behavioral self-regulation, and a covariate that accounts for the influence of economic hardship on adult relationship health outcomes. Finally, I test path models for the relationships amongst observed variables. I hypothesized an inverse relationship between total ACEs scores and adult relationship health scores, which is moderated by demographic factors and mediated by behavioral self-regulation scores.

Chapter Summary

This chapter reviewed relevant literature on ACEs, adult relationship health outcomes, and moderators and mediators of relationship quality. First, the influential ACEs study revealed impactful findings about the prevalence of childhood adversity and subsequent physical, mental, and relational health problems in adulthood in a large sample of primarily White, middle-aged, middle-class, college-educated individuals (Felitti et al., 1998). Further, individuals indicating four or more ACEs reported more dire outcomes (Anda et al., 2010; Felitti et al., 1998, 2010). The ACEs study was then replicated by multiple researchers to include diverse populations with varied education and income levels (Giovanelli et al., 2016; Public Health Management
Corporation, 2013; Wade et al., 2014, 2016). These studies extended the original, Conventional ACEs to include Expanded ACEs such as community violence, discrimination, economic hardship, growing up with one parent in the home etc. These studies also revealed an increased prevalence rate of ACEs and chronic negative outcomes for disadvantaged populations. Further, socioeconomic disadvantage and poverty play significant roles in determining negative outcomes linked to ACEs (Cambron et al., 2014; Font et al., 2016, Nurius et al., 2012; Slopen et al., 2016).

Further, poor adult relationship health outcomes in marginalized populations are linked to both Conventional and Expanded ACEs (Charles et al., 2006; Conger et al., 2010; Karney et al., 2005; Nurius et al., 2012; Umberson et al., 2014, 2016). Wheeler (2017) highlighted the significant negative relationship that exists between childhood adversity and adult relationship quality for economically disadvantaged, marginalized populations. Also, low-income, ethnic minority populations experience elevated, chronic stress which negatively impacts relationship and family functioning (Conger et al., 1999, 2010; Hummer et al., 2010; Karney et al., 2005; Masarik et al., 2016). These populations are more likely to utilize maladaptive problem-solving strategies in response to financial stress (Masarik et al., 2016), and when children grow up in this type of strained environment they become more vulnerable to developing interpersonal, behavioral, and psychological problems (Barnett, 2014; Evans et al., 2002). Further, children from racial and ethnic diverse backgrounds are more likely to have a divorced or separated parent (i.e., an ACE), to live in poverty, and to have poor adult relationship health outcomes themselves (Hummer et al., 2010; Umberson et al., 2014).

Dire outcomes for disadvantaged populations highlight the need to implement interventions that boost relationship health outcomes for economically disadvantaged, racial and ethnic minorities. Such interventions include individual and couple RE (Hawkins et al., 2008;
Stanley et al., 1999). RE covers topics such as communication, problem-solving, conflict resolution, dedication and commitment, expectations, forgiveness, and money management. Also, RE has consistently been found to enhance couple relationship satisfaction and individual well-being for low-income, marginalized individuals and couples (Carlson et al., 2014, 2017; Hawkins et al., 2008).

Lastly, several factors moderate and mediate adult relationship health outcomes. For example, gender, race and ethnicity along with low SES, and children status influence relationship satisfaction, and behavioral self-regulation helps explain relationship satisfaction. The current study tested the aforementioned moderating and mediating variables in path models to examine the relationship between ACEs and adult relationship health outcomes for economically marginalized, racially and ethnically diverse individuals.
CHAPTER THREE: RESEARCH METHODOLOGY

This chapter includes a discussion of the University of Central Florida’s Marriage and Family Research Institute (UCF MFRI) and the federally funded research grant, Project T.O.G.E.T.H.E.R. (To Offer Great Education That Harvests Enduring Relationships). Next, the current study’s research design, research questions and a priori hypotheses, data analyses, and limitations are presented. The chapter concludes with a summary of the research methodology.

UCF MFRI and Project T.O.G.E.T.H.E.R.

I used archival data from the UCF MFRI’s Project T.O.G.E.T.H.E.R. The UCF MFRI was founded in 2003 as a multi-disciplinary research institute. The Institute secured over $15 million in federal funds to conduct research that strengthened family and relationship stability, and subsequently contributed to positive outcomes for children, couples, marriages, and families. The MFRI also supported scholarly activity of faculty members and undergraduate and graduate students interested in couple, marriage, family, and child issues. Scholarly activity included writing and submitting federal grant proposals, conducting community-engaged intervention research, completing yearly program evaluations of intervention studies, and distributing research findings in peer-reviewed journals and at local, national and international conferences. Researchers at the MFRI also reviewed counseling journals, provided consultation services, and taught masters and doctoral level courses in the UCF Counselor Education Program. They also supervised and mentored undergraduate and graduate students on research projects and peer-reviewed publications and presentations. Furthermore, skills and best practices utilized by the UCF MFRI benefited over 7,000 participants. Participants included the target population of economically disadvantaged, married or unmarried individuals and couples with or without children, who expressed interest in learning about and maintaining healthy relationships. Project
T.O.G.E.T.H.E.R. supported the target population through offering individual and couple relationship education (RE) and supplemental relationship-enhancing services at no cost to participants.

**Project T.O.G.E.T.H.E.R.**

Project T.O.G.E.T.H.E.R. (often called “the Project”) was established through a large, federal research grant funded through the U.S. Department of Health and Human Services (HHS), Administration for Children and Families (ACF), Office of Family Assistance (OFA) (90-FM-0039-01-00). The principal investigator of the Project was Dr. Andrew P. Daire, and the UCF Institutional Review Board approved Project T.O.G.E.T.H.E.R. (IRB-00001138). MFRI researchers and support staff conducted Project T.O.G.E.T.H.E.R. from 2011 to 2015 at the UCF main campus MFRI location as well as multiple locations in surrounding Central Florida communities (for e.g., UCF MFRI South Orlando office, local churches, and community centers).

Project T.O.G.E.T.H.E.R. offered individual and couple RE interventions, job and career advancement training, case management services, and supplemental relationship-enhancing group workshops on topics such as Love Languages, Parenting, and Money Management. The main objective of Project T.O.G.E.T.H.E.R. was to research the effectiveness of these interventions in improving family functioning, economic stability, relationship and/or marital satisfaction, parenting, and family adjustment. The Project also offered incentives such as childcare for children under the age of 12, multiple $25 Walmart gift cards, and hot meals, snacks, and non-alcoholic beverages served during workshops. These intentionally offered incentives helped mitigate barriers to program participation and completion for the target.
population (i.e., predominantly economically disadvantaged, ethnic minority individuals and couples).

All individuals and couples voluntarily agreed to participate in Project T.O.G.E.T.H.E.R. and enroll in an individual or couple RE intervention. All RE programs were facilitated in a group format (i.e., an individuals’ group or a couples’ group) and led by two trained Relationship Educators, usually a male and female dyad. RE programs included Prevention and Relationship Enhancement Program (PREP) Within My Reach (WMR), PREP Within Our Reach (WOR), and PREP Within Our Reach Plus (WOR Plus) (Stanley, Blumberg, & Markman, 1999). All programs were offered in English and Spanish to serve both English and Spanish speaking participants.

**Individual and Couple Relationship Education (RE).** Individual and couple RE interventions help participants learn effective communication skills, improve relationship satisfaction, enhance relationship commitment, increase emotional intimacy, and develop healthy conflict resolution and problem-solving skills (Stanley et al., 1999). These interventions also improve parenting skills and enhance the co-parenting alliance.

PREP WMR is a 12-hour RE program. The curriculum is covered over the course of four weeks, with a three-hour workshop once a week. This program was developed for economically disadvantaged individuals with an interest in learning about healthy relationships and/or marriage. Participants included individuals who identified as single, or in a relationship but attended the intervention without a partner. PREP WOR is a 12-hour RE program. The program is delivered over a four-week period, with a three-hour workshop once a week, or over the course of two consecutive Saturdays, with a six-hour session each day. This program was designed for economically disadvantaged couples (married, unmarried, engaged, or in a committed
relationship) with an interest in learning about healthy relationships and/or marriage. Lastly, PREP WOR Plus is a 15-hour RE program. The program is delivered over a five-week period, with a three-hour workshop once a week. This program was designed for economically disadvantaged couples (married, unmarried, engaged, or in a committed relationship) with an interest in learning about healthy relationships and/or marriage. This program also offered employment programming such as job and career readiness assistance and specialized training in retail and customer service and food services. WOR and WOR Plus participants included couples who attended the RE intervention together.

**Recruitment, engagement, and retention procedures.** Recruitment began in 2011 and was ongoing for the duration of the Project. Recruitment staff established benchmark goals, based on prior years’ recruitment results, to guide recruitment efforts. For example, it was estimated that 30% of recruited individuals would sign up to participate in a RE intervention, and 60% of those who signed up would actually enroll and show up to participate, and 80% of those who enrolled and showed up to participate would complete the RE intervention.

Project staff used active and passive recruitment methods (Carlson et al., 2014), including posting flyers around the UCF main campus and at local libraries, and utilizing social media outlets such as Facebook, Twitter, and Instagram. The Project also formed partnerships with local social service community agencies that offered services to predominantly low-income, economically disadvantaged, marginalized individuals, couples, and families who either received or were eligible to receive Temporary Assistance for Needy Families (TANF). Community partnerships allowed Project staff to engage in community outreach efforts and talk directly with persons at The Women, Infants, and Children (WIC) program offices, community tabling events, workforce development agencies, local health departments, and job fairs. Prospective
participants also used an online application available through the UCF MFRI’s website to express their interest in the Project. Also, word of mouth (i.e., participants shared their experiences with friends, family, co-workers etc. and they signed up to participate) became the largest recruitment source by the fourth year of the Project. Total enrollment for all four years of the Project included 2024 couples and 2338 individuals.

Project staff actively engaged and retained recruited participants. Retention of participants was high (i.e., between 85-95%) due in part to the aforementioned incentives, as well as diligence on the part of the staff, which included weekly phone calls to check in with participants, follow up mail or email with requested community resources to help alleviate contextual stressors, invitations to special topics workshops hosted by the Project, and personally greeting participants and their children upon arrival at the Institute.

**Participant inclusion criteria.** The Project included individuals and couples who indicated no active/current domestic violence (for couples), no current and untreated substance abuse issues, and no active and untreated severe mental health issues. The Project identified inclusion criteria based on the scope of the Project, clinical expertise of Project staff, and best practices for facilitating RE. A very small number of individuals and couples were non-eligible to participate (i.e., approximately five cases over the course of the Project). Project staff provided non-eligible participants with resources such as local domestic violence shelters and crisis hotline numbers, substance abuse treatment facilities, community counseling centers, and other pertinent community resources.

**Intake process.** Enrolled participants attended an initial group intake on the first day of the individual or couple RE workshop. Project staff thoroughly reviewed, with perspective participants, the informed consent document which included information about voluntary
participation, the research study process, data collection procedures, instrumentation, use of data for research purposes, potential risks and benefits to participating, timeline and process to complete the individual or couple RE intervention program, and Project incentives. To further ensure informed consent, Project staff answered follow-up questions and addressed concerns voiced by participants. Each participant signed the informed consent document after expressing understanding of the Project and agreement to participate. Then, Project staff invited participants to complete pre-assessment instruments. Baseline data were obtained from each new cohort of individuals and couples. Lastly, each participant received a $25 Walmart gift card for completing the initial group intake process.

The Current Study

I used a subset of archival pre-data collected during the last year of the Project (i.e., from October 1, 2014 to September 29, 2015) to examine the relationships between total ACEs scores (i.e., independent variable), demographic factors (i.e., moderating variables), behavioral self-regulation scores (i.e., mediating variables), adult relationship health scores (i.e., dependent variable), and approximated average individual yearly income (i.e., covariate). I theorized an inverse relationship between total ACEs scores and adult relationship health scores, moderated by demographic factors and mediated by behavioral self-regulation scores. Path models tested the relationships amongst observed variables. I analyzed and reported group data to maintain confidentiality. Old Dominion University Education Human Subjects Review Committee approved the current study (see Appendix E).
Research Design

I utilized a non-experimental ex-post facto (i.e., causal-comparative or associational) research design to examine the relationships between all observed variables (Creswell, 2014; Fraenkel et al., 2009; Heppner et al., 2008).

Sampling criteria and procedure. The current study used a convenience sample (Fraenkel et al., 2009) of couples from Project T.O.G.E.T.H.E.R. Members of the couple dyad were at least 18 years old, in a heterosexual couple relationship (i.e., in a committed relationship, engaged, or married), economically disadvantaged, and racially and ethnically diverse. I utilized simple random sampling (Creswell, 2014; Fraenkel et al., 2009) since the research questions required individual data and not dyadic data. Simple random sampling allowed each partner of the couple dyad equal opportunity to be selected. The Statistical Package for the Social Sciences (SPSS) conducted the random selection process. First, 50% of the cases were selected. Then, if both partners of a couple were randomly selected, those couples underwent an additional round of random selection until only one partner per couple dyad was selected. The random selection process continued until there were no partners from the same couple dyad included in the final dataset. Thus, I avoided violating the assumption of independence and actor-partner interdependence which account for the potential of interdependence in couple data due to members of a couple coexisting in similar social systems and having comparable experiences (Kenny, Kashy, & Cook, 2006; Ledermann, Macho, & Kenny, 2011).

Sample size. I used G*Power to calculate a sufficient sample size, adequate power, and generalizability of findings (Cohen, 1988; Field, 2013). MANOVA: Global effects with two groups (i.e., individuals with a total ACEs score of three and below and individuals with a total ACEs score of four and above) and three response variables (i.e., relationship self-regulation
score, relationship effort score, and adult relationship health score), with a large effect size ($f^2$) of .15, target error probability ($\alpha = .05$), and target power (beta; $\beta = .95$), indicated a minimum total sample size of 120. Further, Kline (2016) suggested that for more complex path models, researchers should have a large sample size of at least 200 participants to make stable approximations. Having a sample size above minimum cutoffs results in a 95% chance that relationships amongst study variables will be detected (Cohen, 1992; Field, 2013; Sink & Stroh, 2006; Tabachnick et al., 2014). The current study’s final sample size was 366 participants which exceeds suggested sample sizes mentioned.

**Research Questions and Hypotheses**

Based on prior literature and theory (Wampold et al., 1990), the research questions and a priori hypotheses include:

1. What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals?

$H_1$: There will be statistically significant relationships among total ACEs scores, adult relationship health scores, behavioral self-regulation scores, and approximated average individual yearly income.

$H_2$: There will be statistically significant relationships among race and ethnicity, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.
H3: There will be statistically significant relationships among gender, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

H4: There will be a statistically significant relationship between children status and adult relationship health scores.

Data analysis: Descriptive statistics, Correlation analyses

2. Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more?

H1: Individuals who indicate a total ACEs score of three or less will have significantly higher scores on behavioral self-regulation and adult relationship health compared to individuals who indicate a total ACEs score of four or more, who will have significantly lower scores on behavioral self-regulation and adult relationship health.

Data analysis: Multivariate analysis of covariance (MANCOVA)

3. Controlling for average yearly income, do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores?

H1: Demographic factors will moderate the relationship between total ACEs scores and adult relationship health scores.

Data analysis: Moderation path analysis

4. Controlling for average yearly income, do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores?
H1: Behavioral self-regulation scores will mediate the relationship between total ACEs scores and adult relationship health scores.

Data analysis: Mediation path analysis

**Measures**

Participants completed several self-report instruments including the Adverse Childhood Experiences (ACEs) Survey, Relationship Assessment Scale (RAS), Adult History Demographic Intake Form, and the Behavioral Self-Regulation for Effective Relationships Scale (BSRERS). These instruments resulted in approximately 80 items that took on average 90 minutes to complete.

**Adverse Childhood Experiences (ACEs) Survey.** The independent variable, total ACEs score, is measured using the ACEs survey. Felitti and colleagues (1998) developed a 10-item checklist of ACEs occurring before the age of 18, with each item falling into one of three domains: (1) child abuse (i.e., physical, emotional, and sexual), (2) child neglect (i.e., physical and emotional), and (3) dysfunction in the childhood home (i.e., having a parent or household member who is divorced, incarcerated, mentally ill, a substance abuser, and/or victimized by maternal IPV). Participants respond with either a “yes” or “no” to each item, and a total ACEs score is calculated by summing all “yes” responses. Total ACEs scores range from zero to 10, with zero indicating no childhood adversity and higher ACEs total scores indicating more exposure to childhood adversity.

Regarding the psychometric properties of the instrument, Dube and colleagues used Cohen’s kappa statistics to evaluate the test-retest reliability of ex-post facto ACEs disclosures from 658 participants from the original ACEs study at two-week and 20-month intervals (Dube, Williamson, Thompson, Felitti, & Anda, 2004). Cohen’s kappa statistics is a statistical test of
reliability that adjusts for test-retest agreement occurring by chance (Fleiss, 1981). Kappa coefficients range from -1 to +1, with kappa coefficients $\geq .75$ indicating excellent reliability, $< .40$ indicating poor reliability, and between .40 and .75 indicating good reliability. Kappa coefficients indicated good to excellent reliability for individual responses to ACEs survey items as well as total ACEs scores. Kappa coefficients included .66, .55, and .69 for emotional abuse, physical abuse, and sexual abuse respectively. Further, kappa coefficients were .75 and .77 for residing with a household member who abused substances and witnessing maternal IPV respectively. The kappa coefficient for total ACEs score was .64. Researchers also reported overall kappa coefficients ranging from .41 to .86 for the three categorical subscales (i.e., child abuse, child neglect, and household dysfunction), demonstrating good to excellent reliability.

Overall, this study revealed that ex-post facto disclosures of ACEs are consistent over time.

Additionally, exploratory factor analysis (EFA) of the ACEs survey confirmed its three-factor structure, appropriateness of a cumulative value which represents overall exposure to ACEs, and high correlation among the three domains (i.e., Cronbach’s alpha of .59 for emotional, physical, and sexual abuse, and .80 for emotional and physical abuse and household dysfunction). Further, factor loadings for the household dysfunction domain showed that parental divorce had the least factor loading of .58, and substance abuse by a household or family member had the highest factor loading of .79 (Ford et al., 2014). Also, in a recent study using Project T.O.G.E.T.H.E.R data, the ACEs survey showed good internal consistency with a Cronbach’s alpha of .76 (Wheeler, 2017) (see Appendix B).

**Relationship Assessment Scale (RAS).** The dependent variable, adult relationship health score (i.e., relationship satisfaction score), is measured using the RAS. The RAS is a seven-item measure of relationship satisfaction or dissatisfaction developed by Hendrick (1988). This
instrument was developed for partners in a relationship and/or marriage, and the items assess the value and meaning an individual places on the relationship. For example, items assess general satisfaction level, overall problems in the relationship, extent to which one’s needs are met by one’s partner, extent to which one’s expectations are being met, how well one’s relationship compares to others, regrets one has about the relationship, and love one feels for partner.

Participants respond to items on a Likert-scale ranging from one to five, indicating the degree to which they agree with each statement. The RAS uses several Likert-scale response formats, including “Unsatisfied to Extremely Satisfied,” “Poor to Excellent,” “Never to Very Often,” “Hardly at All to Completely,” “Not Much to Very Much,” and “Very Few to Very Many.”

A RAS score is calculated by summing responses to all seven items then taking the average. Two items (i.e., 4 and 7) are reversed scored. Scores range from 1 to 5 with higher scores indicating higher levels of relationship satisfaction. A RAS score above 3.5 indicates relationship satisfaction and a non-distressed partner; however, there are slight gender differences regarding relationship dissatisfaction. A RAS score below 3.5 for males and a RAS score below 3 to 3.5 for females indicate relationship distress and potentially considerable relationship dissatisfaction. RAS scores are reliable ($\alpha = .86$) and the items are moderately correlated (.49). The RAS is also highly correlated with the Dyadic Adjustment Scale ($r = .8$) and has a test-retest alpha of .85 (Hendrick, 1988; Hendrick, et al., 1998). Lastly, in a recent study using Project T.O.G.E.T.H.E.R data, the RAS showed high alpha reliability (.91) (Carlson et al., 2017) (see Appendix D).

**Adult History Demographic Intake Form.** Moderating variables include gender, race and ethnicity, and children status, and the covariate is average individual income. These data were collected using the Adult History Demographic Intake Form, a 65-item form developed by
the Project research team. This form also collected data on participant’s age, level of education, relationship status, case management needs, and potential contextual stressors (see Appendix A).

**Behavioral Self-Regulation for Effective Relationships Scale (BSRERS).** The mediating variable, behavioral self-regulation, is measured using the Behavioral Self-Regulation for Effective Relationships Scale–Self (BSRERS-Self). Wilson and colleagues (2005) developed the BSRERS instrument based on a model of self-regulation. The 32-item Likert-response questionnaire ranges from one (Not true at all) to five (Very true), and participants indicate the extent to which each statement is true. Items fall into two domains, relationship self-regulation strategies and relationship effort. Sixteen questions are a self-assessment of one’s self-regulation and effort (BSRERS-Self), and these 16 questions are then rephrased allowing one to assess one’s perception of one’s partner’s self-regulation and effort (BSERES-Partner).

Relationship self-regulation strategies – Self are measured by 10 items. Some items include, “I try to apply ideas about effective relationships to improve our relationship,” “I actually put my intentions or plans for personal change into practice,” and “I make an effort to seek out ideas about what makes for an effective relationship.” Scores range from 15 to 50, with higher scores indicating more relationship self-regulation behaviors. Relationship effort – Self is measured by six reverse-scored items (i.e., items 4, 5, 6, 9, 11, and 13). Some items include, “If things go wrong in our relationship, I tend to feel powerless,” “I tend to put off doing anything about problems in our relationship in the hope that things will get better by themselves,” and “I tend to fall back on what is comfortable for me in relationships, rather than trying new ways of relating.” Scores range from 6 to 30, with higher scores demonstrating less relationship effort behaviors. All 16 items are rephrased to assess the participant’s perception of his or her partner’s behavior (e.g., “My partner tries to apply ideas about effective relationships to improve our
relationship,” “My partner actually puts his/her intentions or plans for personal change into practice,” and “My partner tends to fall back on what is comfortable for him/her in relationships, rather than trying new ways of relating” (Wilson et al., 2005).

The BSRERS-Self yielded psychometrically sound scores that validly and reliably predicted relationship satisfaction in 284 newlywed couples and 61 long-married couples (Wilson et al., 2005). Self-report subscales were moderately correlated ($r = .42$), and the BSRERS-Self showed overall good internal consistency (relationship self-regulation $\alpha = .86$; relationship effort $\alpha = .83$; total score $\alpha = .88$). Additionally, Wheeler (2017) reported good internal consistency of BSRERS-Self items (i.e., Cronbach alpha of .84) in a sample of Project T.O.G.E.T.H.E.R participants. Cronbach’s alpha for the 10 items assessing relationship self-regulation strategies-Self was .84, and Cronbach’s alpha for the six items assessing relationship effort-Self was .73 (see Appendix C).

**Data Set**

Project staff assigned each participant an identification number which was not repeated or given to any other participant. Female participants were denoted with “.02” after their assigned participant number (for e.g., 4001.02) and male participants were denoted with “.01” after their assigned participant number (for e.g., 4008.01). The data set included the following data for each participant:

a) Assigned number

b) Couple RE intervention: 1 = WOR Plus, 2 = WOR

c) Race: 1 = American Indian/Alaska Native, 2 = Asian, 3 = Black/African American, 4 = Native Hawaiian/Other Pacific Islander, 5 = White, 6 = Other

d) Ethnicity: 7 = Hispanic or Latino, 8 = Non-Hispanic
e) Ethnicity and Race Combined Final Groups: 1 = Hispanic or Latino Other, Hispanic or Latino Black/African American, Hispanic or Latino American Indian/Alaska Native, Hispanic or Latino Native Hawaiian/Other Pacific Islander, 2 = Hispanic or Latino White, 3 = Non-Hispanic White, 4 = Non-Hispanic Black/African American, 5 = Non-Hispanic Other, Non-Hispanic Asian, Non-Hispanic American Indian/Alaska Native, Non-Hispanic Native Hawaiian/Other Pacific Islander

f) Gender: 1 = Male, 2 = Female

g) Age

h) Average individual monthly income; multiplied by 12 for average yearly income

i) Education attainment: 1 = No degree or diploma earned, 2 = High school diploma/GED, 3 = Vocational/Technical Certification, 4 = Associate degree, 5 = Bachelor degree, 6 = Master’s degree/Advanced degree, 7 = Other

j) Relationship classification: 2 = Committed Relationship, 3 = Engaged, 4 = Married, 5 = Separated, 6 = Divorced, 7 = Widowed

k) Children status: 1 = no children or children over the age of 18, 2 = at least one child under the age of 18

l) Total number of children

m) Total ACEs score

n) Relationship Assessment Scale (RAS) average score

o) Behavioral self-regulation total score
   a. Relationship self-regulation strategies subscale score
   b. Relationship effort subscale score
Analysis

The current study includes moderator and mediator variables as well as a covariate. I explain these types of variables along with the analyses utilized. Analyses included preliminary analyses, correlation analyses, Multivariate analysis of covariance (MANCOVA), and path analysis. I used SPSS 24 to run preliminary analyses, test assumptions, and conduct correlation analyses and MANCOVA. I used Mplus 7.4 to conduct all path models.

Moderators. Moderators influence an outcome variable (Keith, 2015), and address “when” or “for whom” a variable most strongly predicts a dependent variable (Frazier, Tix, & Barron, 2004, p.116). A moderating variable influences the nature of the relationship between an independent and dependent variable (i.e., the direction and/or strength of the relationship) (Baron & Kenny, 1986; Keith, 2015), and can be categorical (e.g., gender) or continuous (e.g., total number of children) (Heppner et al., 2008). Moderation analyses determine if the relationship between an independent and dependent variable is different for each level of a moderator variable. And, a moderation effect is the interaction between the independent and moderator variable that ultimately predicts the dependent variable (Frazier et al., 2004; Keith, 2015). The current study examines the combined or interaction effect of total ACEs scores and each demographic factor on adult relationship health scores.

Mediators. Mediators are variables that have a relationship with the independent and the dependent variable, and therefore help explain the relationship between the independent and dependent variable (Baron & Kenny, 1986; Keith, 2015). Mediators address “how” or “why” a variable predicts a dependent variable, and act as underlying mechanisms through which the independent variable influences the dependent variable (Frazier et al., 2004, p. 116). Baron and Kenny (1986) provide a path model for mediation, and four criteria that must be met. First, a
A path model for mediation illustrates the following: (a) variance in levels of the predictor variable significantly account for variance in the potential mediator; (b) variance in the potential mediator significantly account for variance in the outcome variable; and (c) variance in levels of the predictor variable significantly account for variance in the outcome variable. Next, the criteria that must be met include: (a) the relationship between the independent variable and the dependent variable must be statistically significant; (b) the relationship between the independent variable and the mediating variable must be statistically significant; (c) the relationship between the mediating variable and the dependent variable must be statistically significant; and (d) criteria (a) is significantly reduced or no longer exists after adding the mediating variable to the model. Lastly, from a theoretical standpoint, evidence of a strong, complete/full mediation exists when the relationship between the predictor variable and the outcome variable diminishes to zero or becomes non-significant, and a partial mediation exists when there is a significant, yet lesser reduction in the relationship (Baron & Kenny, 1986; Keith, 2015). The current study examines the indirect effect of behavioral self-regulation scores on the relationship between total ACEs scores and adult relationship health scores.

**Covariates.** Field (2013) and Pallant (2013) clearly state it is impossible to control for all covariates that potentially influence a dependent variable. I selected the covariate (i.e., average individual yearly income [continuous variable]) a priori based on theory and existing literature (Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2014). Literature highlights how SES and income influence adult relationship health outcomes (Carlson et al., 2014; Charles et al., 2006; Conger et al., 1999, 2010; Hummer & Hamilton, 2010; Karney & Bradbury, 2005). Statistically controlling for (i.e., attempting to reduce) the effect of average individual yearly income on adult
relationship health in the model decreases systematic bias and error variance and increases the probability of detecting significance (Field, 2013; Pallant, 2013).

**Preliminary analyses.** Preliminary analyses included assumption checking for parametric tests for each data analysis (Field, 2013; Pallant, 2013; Tabachnick et al., 2014). I calculated sufficient sample sizes and power, conducted random sampling, screened the data for errors, addressed identified errors, handled missing data and outliers, checked the scale of measurement for study variables (i.e., continuous, interval level data), ensured independence of observations, examined distributional properties, ran descriptive statistics, and conducted tests for normality, linearity, and homoscedasticity. I also calculated coefficients of determination, assessed the level of significance for each correlation, and conducted tests for homogeneity of variance-covariance matrices, homogeneity of regression, reliability of covariate, multicollinearity and singularity, and residuals. Lastly, I analyzed histograms, scatterplots, and boxplots to further examine and describe the data.

**Correlational analyses.** I used correlational analyses to explore the strength (i.e., small, medium, or large) and direction (i.e., positive or negative) of the relationships between total ACEs scores, demographic variables, relationship self-regulation strategies scores, relationship effort scores, adult relationship health scores, and approximated average individual yearly income. Variables that are positively correlated increase simultaneously, while variables that are negatively correlated have an inverse relationship (i.e., as one variable increases the other decreases) (Field, 2013; Pallant, 2013).

**Multivariate analysis of covariance (MANCOVA).** MANCOVA is a multivariate extension of analysis of covariance (ANCOVA) (Hair et al., 2006; Tabachnick et al., 2014). It determines if statistically significant mean differences exist between groups (i.e., individuals
who indicated a total ACEs score of four or more, and individuals who indicated a total ACEs score of three or less) on a newly combined dependent variable (i.e., linear combination of relationship self-regulation strategies scores, relationship effort scores, and adult relationship health scores), after statistically controlling for the possible effect of a covariate (Tabachnick et al., 2014). MANCOVA removes the variance related to an individual’s average yearly income, strengthens the test of mean differences between groups, contributes to the probability of finding between-group differences, and controls for the risk of Type I error (i.e., finding significance when there are no significant between-group differences).

The variables included in the new composite dependent variable correlate with each other and are conceptually linked in existing literature (Heppner et al., 2008; Wheeler, 2017; Wilson et al., 2005). Therefore, considering them together is well supported (Pallant, 2013; Tabachnick et al., 2014). The adjusted dependent variable is the combination that would exist if all individuals reported the same income. Univariate results for each dependent variable as well as significant group differences are discussed.

Path modeling and path analysis. Prior research on ACEs (e.g., Felitti et al., 1998; Public Health Corporation, 2013; Whitfield et al., 2003), demographic factors (e.g., Bulanda et al., 2008; Charles et al., 2006; Conger et al., 1999, 2010; Hummer & Hamilton, 2010; Karney et al., 2005; Masarik et al., 2016), behavioral self-regulation (e.g., Wheeler, 2017; Wilson et al., 2005), and adult relationship health outcomes in low-to-moderate income, disenfranchised populations (e.g., Carlson et al., 2014, 2017; Mersky et al., 2018; Umberson et al., 2014, 2016) justify the use of path modeling to test the probability of causal, moderating, and mediating relationships amongst observed variables (Fraenkel et al., 2009; Tabachnick et al., 2014). Path analysis includes four steps: (a) propose a theory that connects the study’s predictor, moderator,
and mediator variables, and explains the outcome variable, (b) measure all study variables, (c) use correlational analyses to determine the strength of the relationship between pairs of study variables, (d) determine goodness of fit for the variables proposed in the model, and (e) calculate path coefficients (Fraenkel et al., 2009; Keith, 2015). I followed the aforementioned steps and proposed a path model. The path model uses arrows to illustrate the direction of each hypothesized causal, moderating, and mediating relationship. Each arrow points in one direction only, indicating that one variable is theorized to influence another variable, but not contrariwise (Fraenkel et al., 2009). Finally, I used path analysis to test the ability of moderation path models (including centered total ACEs scores and each demographic factor) to predict adult relationship health scores, and mediation path models (including total ACEs scores and behavioral self-regulation scores) to explain adult relationship health scores (Keith, 2015) (see Figure 1).

*Figure 1. Path Model*
Threats to Internal and External Validity

Compromises are often made when designing and implementing a research study (Heppner et al., 2008). No study is without threats to internal and external validity; however, a study is still considered scientifically useful once threats to validity are not severe enough to disqualify its findings, which are accepted tentatively. Internal validity refers to the study’s procedures, interventions, and/or participants’ experiences that affect the validity of findings (Creswell, 2014). These factors jeopardize the researcher’s ability to make valid inferences about the study’s population. External validity refers to generalizability of research findings based on sample characteristics and uniqueness of research settings (Creswell, 2014).

The current study included uncontrolled variables not manipulated by the researcher (Heppner et al., 2008; Pallant, 2013). Also, only participants who met the inclusion criteria for Project T.O.G.E.T.H.E.R. could participate in the study. Participants meeting inclusion criteria may possess specific qualities or characteristics that contribute to certain outcomes (Creswell, 2014). Further, data collection procedures and research settings may have impacted participants’ responses. For instance, participants completed assessments with their partner present, oftentimes sitting right beside them. The physical proximity of one’s partner and his or her ability to potentially see the other’s responses may compromise accuracy of answers (Creswell, 2014). In addition, recruitment staff and recruitment strategies could have biased the sample, and people who were invited to participate in the research could have chosen not to do so. On the other hand, the sample was large, representative of the target population, and came from six counties across Central Florida. Also, studies using Project T.O.G.E.T.H.E.R. data (discussed below) yield consistent results, potentially illustrating generalizability of research findings to low to moderate income, economically disadvantaged, racially and ethnically diverse individuals and
couples who participate in individual and couple RE interventions (Creswell, 2014; Heppner et al., 2008).

**Examples of Project T.O.G.E.T.H.E.R. studies.** Studies focused on the Project’s main objective and examined the extent to which individual and couple RE influenced parental and couple relationship outcomes in economically disadvantaged, marginalized populations. For example, Barden et al. (2015) reported that 70 low-to-moderate income couples had significant positive changes in parental attitudes toward family roles at post-intervention. Parental attitudes were assessed using two subscales (i.e., empathy and family roles) from the Adult-Adolescent Parenting Inventory-2. Another study examined the parental alliance of 190 low-income individuals who participated in a couple RE intervention. Results indicated that these individuals had significant improvements in their parenting alliance at post-intervention (Carlson et al., 2014).

Next, a study of 60 low-income individuals who identified being in a relationship but attended an individual RE intervention and 192 low-income couples who attended a couple RE intervention found that for couples, a significant interaction effect existed between self-reported levels of distress, participant gender, and time. Specifically, women who reported relationship distress at pre-intervention showed the highest gains at post-intervention. And, for individuals, levels of individual distress significantly decreased from pre to post-intervention, however no significant relationship gains were observed (Carlson et al., 2017). Additionally, 54 low-income, racially and ethnically diverse married couples with children were randomly assigned to participate in a couple RE intervention either immediately or six months later. Results indicated that relationship satisfaction significantly increased for the treatment group who participated immediately (Carlson et al., 2014). Lastly, Carlson et al. (2014) investigated levels of individual
distress and relationship satisfaction in 96 economically disadvantaged married couples with children at pre-intervention, post-intervention, and 3 to 6 months post-intervention. Findings indicated significant gains in relationship satisfaction and significant decreases in individual distress at follow up.

Chapter Summary

I utilized a subset of archival pre-data collected during the fourth year of Project T.O.G.E.T.H.E.R. The Project was conducted at the UCF MFRI, a multi-disciplinary, multi-site research institute located in Central Florida. Project staff recruited, engaged, and retained participants from the target population (i.e., socioeconomically disadvantaged individuals and couples, married or unmarried, with or without children). The Project offered individual and couple RE interventions (i.e., PREP WMR, PREP WOR, and PREP WOR Plus), job and career advancement training, case management services, short-term individual and couples counseling, and special topics workshops at no cost to enrolled participants. Enrolled participants also received incentives to help alleviate barriers to program completion.

The current study used a non-experimental ex-post facto research design (Creswell, 2014; Heppner et al., 2008) and a convenience sample of individuals (Fraenkel et al., 2009). I calculated the required sample size to obtain target power and error, large effects, and generalizability of findings (Cohen, 1988; Field, 2013). The minimum sample size required was 200 participants, and the current study’s sample size was 366 individuals. Instrumentation included the Adult History Demographic Intake Form, ACEs Survey (Felitti et al., 1998), BSRERS (Wilson et al., 2005), and the RAS (Hendrick, 1988). All instruments demonstrated acceptable psychometric properties. Further, the research questions included: 1) What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship
health scores, demographic factors, and approximated average individual yearly income in an
economically marginalized, racially and ethnically diverse sample of individuals? 2) Controlling
for average yearly income, is there a significant difference in behavioral self-regulation scores
and adult relationship health scores among individuals who indicate a total ACEs score of three
or less and individuals who indicate a total ACEs score of four or more? 3) Controlling for
average yearly income, do demographic factors moderate the relationship between total ACEs
scores and adult relationship health scores? 4) Controlling for average yearly income, do
behavioral self-regulation scores mediate the relationship between total ACEs scores and adult
relationship health scores?

I hypothesized an inverse relationship between total ACEs scores and adult relationship
health scores, moderated by demographic factors and mediated by behavioral self-regulation
scores. I also controlled for the effect of approximated average individual yearly income on adult
relationship health outcomes. Data analysis included preliminary analyses, descriptive statistics,
correlation analyses, MANCOVA, and moderation and mediation path analyses. I maintained
confidentiality by analyzing and reporting group data. Lastly, I discussed internal and external
validity.
CHAPTER FOUR: RESULTS

I examined the relationship between total ACEs scores (i.e., independent variable) and adult relationship health scores (i.e., dependent variable). I controlled for the effect of average individual yearly income on adult relationship health and examined the extent to which demographic factors (i.e., gender, race and ethnicity, and children status) moderate the relationship between ACEs and adult relationship health, and the extent to which behavioral self-regulation mediates the relationship between ACEs and adult relationship health. This chapter discusses data screening and cleaning, missing data, and preliminary analyses including descriptive statistics. Assumption checking for correlational analyses, multivariate analysis of covariance (MANCOVA), and path analysis are provided, as well as answers to research questions and a priori hypotheses. The research questions included: 1) What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals? 2) Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more? 3) Controlling for average yearly income, do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores? 4) Controlling for average yearly income, do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores? I report information about statistical power of tests and effect sizes and use tables and figures to further illustrate the study’s findings. This chapter concludes with a summary of the study’s results.
Data Screening and Cleaning

I screened the archival data set for errors and examined the frequencies for each variable including all individual items on all measures. I looked for incorrect values and scores outside of the possible range of scores. The data set contained no errors and had few missing data. Two participants did not describe their current relationship, one Hispanic/Latino White female did not report an average monthly income, and one Non-Hispanic Black/African American male omitted question 8 on the BSRERS, and therefore did not have a total relationship self-regulation strategies subscale score. I determined that missing data were random, and left these values missing in the dataset. I also used the exclude cases pairwise option in SPSS when conducting all statistical analyses.

Preliminary Analyses

I conducted preliminary analyses including descriptive statistics. Descriptive results indicated a total sample size of 366 individuals including 164 males (44.8%) and 202 females (55.2%). The average age was 35.16 years ($SD = 11.47$ years), and ages ranged from 18 to 77. The majority of participants attained a high school diploma/GED ($n = 116, 31.7\%$), followed by a bachelor’s degree ($n = 80, 21.9\%$). The most frequently reported employment status was full time ($n = 157, 42.9\%$), followed by unemployed ($n = 118, 32.2\%$), and part-time ($n = 65, 17.8\%$). The length of couple relationship ranged from one month to 53 years ($M = 9.08$ years, $SD = 9.5$ years, $Mdn = 6$ years), and most participants ($n = 202, 55.5\%$) described their relationship as “good,” followed by “fair” ($n = 125, 34.3\%$), and 37 participants described their relationship as “poor” (10.2\%).

The sample also included ethnically and racially diverse individuals (i.e., 182 Hispanic or Latino individuals [49.7\%] and 184 Non-Hispanic individuals [50.3\%]). Racial groups included
American Indian/Alaska Native ($n = 4, 1.1\%$), Asian ($n = 7, 1.9\%$), Black/African American ($n = 72, 19.7\%$), Native Hawaiian/Other Pacific Islander ($n = 3, .8\%$), White ($n = 163, 44.5\%$), and Other ($n = 117, 32\%$). Participants who indicated “Other” provided descriptions such as Latino/a, Hispanic, Multiracial, White, and countries of origin (i.e., Puerto Rican, Dominican, and Mexican). I combined the ethnicity and race variables to create the moderator variable for the path model. Descriptive results for participants’ ethnicity and race combined included Hispanic or Latino American Indian/Alaska Native ($n = 3, .8\%$), Non-Hispanic American Indian/Alaska Native ($n = 1, .3\%$), Non-Hispanic Asian ($n = 7, 1.9\%$), Hispanic or Latino Black/African American ($n = 5, 1.4\%$), Non-Hispanic Black/African American ($n = 67, 18.3\%$), Hispanic or Latino Native Hawaiian/Other Pacific Islander ($n = 2, .5\%$), Non-Hispanic Native Hawaiian/Other Pacific Islander ($n = 1, .3\%$), Hispanic or Latino White ($n = 72, 19.7\%$), Non-Hispanic White ($n = 91, 24.9\%$), Hispanic or Latino Other ($n = 100, 27.3\%$), and Non-Hispanic Other ($n = 17, 4.6\%$) (see Table 1 and Table 2).

Table 1 Sample Descriptive Results

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<th>257</th>
<th>70.2</th>
<th>Have no children/Have at least one child over the age of 18 years old</th>
<th>109</th>
<th>29.8</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Relationship Status</th>
<th>Married</th>
<th>225</th>
<th>61.5</th>
<th>Committed relationship</th>
<th>113</th>
<th>30.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td></td>
<td></td>
<td></td>
<td>Engaged</td>
<td>23</td>
<td>6.3</td>
</tr>
<tr>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td>Divorced</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Separated</td>
<td>1</td>
<td>.3</td>
</tr>
</tbody>
</table>

\( N = 366 \)
Table 2 Sample Descriptive Results by Moderator Variables: Gender, Children Status, and Race and Ethnicity

<table>
<thead>
<tr>
<th>Moderator Variables</th>
<th>Gender</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. average individual yearly income</td>
<td>Male</td>
<td>$18,507.44</td>
<td>$11,331.15</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>$14,078.20</td>
<td>$11,736.10</td>
<td>$0.00</td>
<td>$54,000.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Adult relationship health score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>3.80</td>
<td>.77</td>
<td>1.43</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3.61</td>
<td>.84</td>
<td>1.29</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Relationship self-regulation strategies score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>36.02</td>
<td>7.09</td>
<td>15</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>38.18</td>
<td>7.11</td>
<td>19</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Relationship effort score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16.35</td>
<td>5.26</td>
<td>6</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>16.61</td>
<td>5.83</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Children Status</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. average individual yearly income</td>
<td>Have no children/Have at least one child over the age of 18</td>
<td>$14,792.35</td>
<td>$11,673.43</td>
<td>$0.00</td>
<td>$50,004.00</td>
</tr>
<tr>
<td></td>
<td>Have at least one child under the age of 18</td>
<td>$13,617.29</td>
<td>$14,386.49</td>
<td>$0.00</td>
<td>$60,000.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Adult relationship health score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no children/Have at least one child over the age of 18</td>
<td>3.85</td>
<td>.78</td>
<td>1.86</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Have at least one child under the age of 18</td>
<td>3.63</td>
<td>.83</td>
<td>1.29</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Relationship self-regulation strategies score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no children/Have at least one child over the age of 18</td>
<td>37.51</td>
<td>6.96</td>
<td>18</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Have at least one child under the age of 18</td>
<td>37.09</td>
<td>7.27</td>
<td>15</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Relationship effort score</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have no children/Have at least one child over the age of 18</td>
<td>16.37</td>
<td>5.97</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Have at least one child under the age of 18</td>
<td>16.55</td>
<td>5.42</td>
<td>6</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Ethnicity and Race</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. average individual yearly income</td>
<td>$13,433.88</td>
<td>$14,078.20</td>
<td>$15,010.81</td>
<td>$14,455.34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$11,331.15</td>
<td>$14,799.45</td>
<td>$15,736.10</td>
<td>$13,259.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$48,000.00</td>
<td>$60,000.00</td>
<td>$54,000.00</td>
<td>$57,600.00</td>
<td></td>
</tr>
</tbody>
</table>
### Relationship Group Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Adult relationship score</th>
<th>Relationship self-regulation strategies score</th>
<th>Relationship effort score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>3.82</td>
<td>7.75</td>
<td>18</td>
</tr>
<tr>
<td>Group 2</td>
<td>3.75</td>
<td>7.25</td>
<td>19</td>
</tr>
<tr>
<td>Group 3</td>
<td>3.73</td>
<td>6.43</td>
<td>15</td>
</tr>
<tr>
<td>Group 4</td>
<td>3.54</td>
<td>7.10</td>
<td>19</td>
</tr>
<tr>
<td>Group 5</td>
<td>3.33</td>
<td>6.80</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>$11,023.85</th>
<th>$12,666.27</th>
<th>$0.00</th>
<th>$48,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>$12,666.27</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
<tr>
<td>Group 2</td>
<td>$0.00</td>
<td>$12,666.27</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
<tr>
<td>Group 3</td>
<td>$11,023.85</td>
<td>$12,666.27</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
<tr>
<td>Group 4</td>
<td>$11,023.85</td>
<td>$12,666.27</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
<tr>
<td>Group 5</td>
<td>$11,023.85</td>
<td>$12,666.27</td>
<td>$0.00</td>
<td>$48,000.00</td>
</tr>
</tbody>
</table>

\( N = 366; \) one missing data; Group 1: Hispanic or Latino - Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander, Group 2: Hispanic or Latino White, Group 3: Non-Hispanic White, Group 4: Non-Hispanic Black/African American, Group 5: Non-Hispanic – Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander

Approximated average individual yearly income ranged from $0.00 to $60,000.00. The mean was $13,968.19 (\( SD = 13,627.73, Mdn = 12,000.00 \)), the mode was $0.00 (\( n = 111, 30.4% \)), and one participant had the maximum approximated average individual yearly income of $60,000.00. Most participants were either married or in a committed relationship (\( n = 338, 92.3% \)), had children under the age of 18 years (\( n = 257, 70.2% \)), and the total number of children ranged from zero to eight (\( M = 1.77 \)). Data were collected from 2014 to 2015, and the poverty threshold (i.e., a measure of federal poverty in the U.S.) in 2015 for a family of four consisting of two adults and two children under the age of 18 years is $24,036.00 (U.S. Census
Bureau, 2018). Approximately 81% of participants (n = 298) had approximated average individual yearly incomes below this federal poverty threshold. Each participant identified being in a relationship and had a partner who may or may not have contributed income to the household; however, participants’ partners’ data were not used in the current study. Yet, a recent study using Project T.O.G.E.T.H.E.R. couple data (i.e., including both partners’ data) determined that approximately 75.5% of participants had incomes below the 2015 federal poverty guidelines for a household/family size of four (Wheeler, 2017).

Additionally, approximately 19% of participants indicated zero ACEs, 14% indicated one ACE, 12% indicated two ACEs, and 11% indicated three ACEs (i.e., 56% of participants indicated an ACEs score of three or below), and 44% indicated four or more ACEs. The average total ACEs score was 3.20 (SD = 2.56), adult relationship health score (M = 3.70, SD = .82), relationship self-regulation strategies subscale score (M = 37.22, SD = 7.17), and relationship effort subscale score (M = 16.50, SD = 5.58) (see Table 3).

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>5% Trimmed Mean</th>
<th>SD</th>
<th>Skew</th>
<th>Kurtosis</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. average individual yearly income^</td>
<td>$13,968.19</td>
<td>$12,842.21</td>
<td>$13,627.73</td>
<td>.856</td>
<td>.197</td>
<td>$0.00</td>
<td>$60,000.00</td>
</tr>
<tr>
<td>Total ACEs score</td>
<td>3.20</td>
<td>3.09</td>
<td>2.56</td>
<td>.428</td>
<td>-.822</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Adult relationship health score</td>
<td>3.70</td>
<td>3.72</td>
<td>.82</td>
<td>-.379</td>
<td>-.459</td>
<td>1.29</td>
<td>5</td>
</tr>
<tr>
<td>Relationship self-regulation strategies score^</td>
<td>37.22</td>
<td>37.42</td>
<td>7.17</td>
<td>-.357</td>
<td>-.282</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>
Assumptions Testing

Each statistical technique has assumptions that must be met before that statistical technique can be used (Pallant, 2013). However, in social sciences research, it is common to not meet all the assumptions for a chosen statistical technique. Assumption testing for correlational analysis, MANCOVA, and path analysis are discussed below.

**Correlational analysis.** The assumptions include level of measurement, range of scores, related pairs, independence of observations, normality, outliers, linearity, and homoscedasticity.

**Level of measurement and range of scores.** Moderator variables are categorical (i.e., gender, race and ethnicity, and children status), and the level of measurement for the independent variable (i.e., total ACEs scores), the mediator variables (i.e., relationship self-regulation strategies and relationship effort scores), the dependent variable (i.e., adult relationship health scores), and the covariate (i.e., approximated average individual yearly income) is continuous. Correlational analyses can be used with categorical and continuous variables to examine the relationships between independent, mediator, dependent, and covariate variables across different moderator variables. Also, in order to detect a valid and reliable correlation, Pallant (2013) states that there ought to be as wide a range of scores as possible on each observed variable. Table 3 includes minimum and maximum scores or values and shows a wide range of scores or values for the independent, mediator, dependent, and covariate variables.

**Related pairs and independence of observations.** Each participant provided data for each observed variable (i.e., related pairs of data). Regarding independence of observations, participants’ data were collected independently (i.e., each participant completed their own
measures separate from their partner). Although observations were independent, the research setting possibly influenced the data collected (i.e., participants’ partners and a small group of couples being present and sitting close by while completing measures [possible interaction among participants]) (Pallant, 2013; Stevens, 1996). Stevens suggests using a more conservative or rigorous alpha level (i.e., $p < .01$) if this assumption is violated. However, Project T.O.G.E.T.H.E.R. staff aimed to ensure independence of observations by limiting participants’ interaction with each other and with staff, redirecting participants, when necessary, to focus on and complete their own measures, and requesting participants to respect their partners’ and other group members’ privacy during the data collection process.

**Normality.** Parametric techniques assume normality (Pallant, 2013). I assessed the normality of the distribution for the mediating variables, the dependent variable, and the covariate. Skewness and kurtosis values indicated normal distributions for all variables (see Table 3). However, tests of normality using Kolmogorov-Smirnov and Shapiro-Wilk statistics were significant for all variables (i.e., $p < .05$), thereby indicating non-normal distributions. I inspected the actual shape of the distribution of scores and values for each variable. Histograms revealed positively skewed data for approximated average individual yearly income, slightly positively skewed data for total ACEs scores, and reasonably normally distributed data for adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores. Normal probability plots showed reasonably straight lines, indicating normality for adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores.

**Outliers.** Boxplots and scatterplots displayed no extreme points but indicated several possible outliers. There were five high values for approximated average individual yearly income
(i.e., $50,004.00, $53,136.00, $54,000.00, $57,600.00, and $60,000.00); three low scores for relationship self-regulation strategies (i.e., 15, 18, and 19); two low scores for adult relationship health (i.e., 1.29 and 1.43); and two low scores for relationship effort (i.e., 6 and 7). All potential outliers are within possible ranges of values or scores for the respective variables. I then examined the mean and 5% trimmed mean for each variable. Both means were very similar for the mediating and dependent variables, indicating that outliers did not strongly influence the mean (Pallant, 2013). However, the mean difference for approximated average individual yearly income was $1,125.98 (see Table 3). So, I examined the five cases with high values for approximated average individual yearly income (identified above). I do not have access to participants’ charts to check the accuracy of data entered in SPSS. However, entered data are likely accurate due to rigorous data checking processes of Project T.O.G.E.T.H.E.R. data entry specialists. Three data entry specialists checked all participant data for accuracy (i.e., compared data entered in SPSS with data reported by participant filed in participant’s hard copy chart).

I did not change or recode outliers, remove them from the dataset, or transform the variables (Pallant, 2013; Tabachnick et al., 2014). Reason being, all potential outliers, including those for approximated average individual yearly income, were not identified as extreme points by SPSS. Also, the means for adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores were not strongly impacted by outliers.

**Linearity and homoscedasticity.** I examined matrices of scatterplots to explore and describe the relationships between total ACEs scores, behavioral self-regulation scores (i.e., relationship self-regulation strategies and relationship effort scores), and adult relationship health scores. For the entire sample, scatterplots indicated roughly linear relationships and homoscedasticity (i.e., similar variance in scores) across mediating and dependent variables.
(Pallant, 2013). Scatterplots generated for each demographic factor indicated linearity and homoscedasticity, except for the following curvilinear relationships, Group 2 (i.e., Hispanic or Latino White) total ACEs scores and relationship self-regulation strategies scores, and total ACEs scores and relationship effort scores, and Group 3 (i.e., Non-Hispanic White) adult relationship health scores and relationship effort scores. So, I calculated Pearson’s correlation coefficients for all linear relationships, Spearman’s rho correlation coefficients for all curvilinear relationships (Pallant, 2013), and used Cohen’s guidelines (1988) to interpret the correlation coefficients.

**Multivariate analysis of covariance (MANCOVA).** The assumptions include sample sizes, power, univariate and multivariate normality, univariate and multivariate outliers, homogeneity of variance-covariance matrices, linearity, homogeneity of regression, reliability of covariate, multicollinearity, and singularity.

**Sample sizes and power.** Both groups have sufficient sample sizes (i.e., individuals with a total ACEs score of three or below \( n = 206, 56.3\% \), and individuals with a total ACEs score of four or above \( n = 160, 43.7\% \)) (Tabachnick et al., 2014). There is adequate power since the number of participants per group far exceed the number of dependent variables (i.e., 3).

**Univariate and multivariate normality.** Significance tests are based on univariate and multivariate normality (i.e., the distributions of means of the dependent variables in each group, and all linear combinations of them are normally distributed). For the sample, the three dependent variables (i.e., adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores) are normally distributed, and the covariate (i.e., approximated average individual yearly income) is positively skewed. Though, skewness and
kurtosis values for approximated average individual yearly income indicate a reasonably normal distribution.

When the sample is divided into two independent groups (i.e., individuals with a total ACEs score of three or below, and individuals with a total ACEs score of four or above), tests of normality using the Kolmogorov-Smirnov statistic are significant (i.e., $p < .05$) for both groups, and approximated average individual yearly income and adult relationship health scores, and for individuals with a total ACEs score of three or below and relationship self-regulation strategies scores. This indicates non-normal distributions for these variables within the corresponding groups. However, the Kolmogorov-Smirnov statistic is non-significant (i.e., $p > .05$) for both groups and relationship effort, and for individuals with a total ACEs score of four or above and relationship self-regulation strategies scores. This indicates normal distributions for these variables within the corresponding groups. Skewness and kurtosis absolute values are under 1 for each group and all dependent variables, and for individuals with a total ACEs score of three or less and approximated average individual yearly income, thereby indicating normal distributions. Skewness and kurtosis values are 1.11 and 1.30 respectively, for individuals with a total ACEs score of four or above and approximated average individual yearly income; however, these values are not extreme (Keith, 2015; Tabachnick et al., 2014). Histograms for both groups reveal positively skewed data for approximated average individual yearly income, and reasonably normally distributed data for all dependent variables. And, normal probability plots for both groups show reasonably straight lines for the covariate and all dependent variables, indicating normal distributions.

Next, I assessed multivariate normality using Mahalanobis distances (Pallant, 2013; Tabachnick et al., 2014). Mahalanobis distance is the distance of a case from the centroid (i.e.,
value generated by the averages of all dependent variables); it indicates the extent to which a case’s pattern of scores is different from the rest of cases. For individuals with a total ACEs score of three or less, the maximum value for Mahalanobis distance was 13.40; this value does not exceed the chi-square critical value ($\chi^2 = 16.27$, $df = 3$, $p = .001$), thus indicating multivariate normality. For individuals with a total ACEs score of four or above, the maximum value for Mahalanobis distance was 16.74; this value is only slightly higher than the critical $\chi^2$ value. With each group’s sample size far exceeding 30 participants, all abovementioned violations of normality are nonconsequential (Pallant, 2013).

**Univariate and multivariate outliers.** MANCOVA is also sensitive to outliers (Pallant, 2013; Tabachnick et al., 2014). I checked for within-group univariate and multivariate outliers for each dependent variable and the covariate. Boxplots indicated four univariate outliers; none identified as extreme points. Two participants with a total ACEs score of four or above had high approximated average individual yearly incomes, one participant with a total ACEs score of three or below had a low adult relationship health score, and one participant with a total ACEs score of four or above had a low relationship self-regulation strategies score. There were no outlier scores for relationship effort. I compared the mean and 5% trimmed mean for each group for each dependent variable and the covariate. Means were very similar for both groups for each dependent variable, and the difference in means for approximated average individual yearly income for individuals with a total ACEs score of three or below was $1,035.18$, and for individuals with a total ACEs score of four or above was $1,082.17$.

For individuals with a total ACEs score of three or less, the maximum value for Mahalanobis distance was less than the critical $\chi^2$ value, thereby indicating no significant multivariate outliers (i.e., no cases with odd patterns of scores across the dependent variables).
For individuals with a total ACEs score of four or more, the maximum value for Mahalanobis distance was only slightly higher than the critical $\chi^2$ value. I kept all univariate outliers in the data set since none of them were identified as extreme points, and means were not significantly altered for the dependent variables (Pallant, 2013; Tabachnick et al., 2014). Also, only one participant had a Mahalanobis distance value slightly above the critical $\chi^2$ value. This value was not too extreme, so I kept the multivariate outlier as well.

**Homogeneity of variance-covariance matrices.** Box’s $M$ test of equality of covariance matrices indicates robustness and a non-violation of this assumption for both groups ($p > .001$) (Pallant, 2013; Tabachnick et al., 2014). Levene’s test of equality of error variances indicates non-significance for all dependent variables ($p > .05$), therefore the data do not violate the assumption of equality of variances (i.e., there are equal variances across all dependent variables).

**Linearity and homogeneity of regression.** Power of statistical tests is reduced when relationships deviate from linearity (Pallant, 2013; Tabachnick et al., 2014). A matrix of scatterplots for each group indicates that all relationships between pairs of dependent variables, and all relationships between each dependent variable and the covariate are linear. Further, homogeneity of regression was not violated. For each group, scatterplots illustrating the relationship between each dependent variable and the covariate, show lines that orient in the same direction, with similar slopes (Pallant, 2013). Also, each interaction is non-significant ($p > .05$), indicating that the relationship between approximated average individual yearly income, adult relationship health scores, and behavioral self-regulation scores is the same for both groups (i.e., the regression is the same for both groups) (Tabachnick et al., 2014). Moreover, there is no interaction between approximated average individual yearly income and total ACEs scores, so
using the mean regression to adjust for approximated average individual yearly income in both
groups is acceptable.

**Reliability of covariate.** MANCOVA also assumes that covariates are measured without
error (Pallant, 2013), and the $F$ test for mean differences between groups is more robust when the
covariate is reliable (Tabachnick et al., 2014). Average individual monthly income was measured
reliably during the intake process. I inspected the open-ended question, and it was clear and
appropriate for the entire sample. The question asked each participant to write in his or her
average individual monthly income, and the word “monthly” was underlined to emphasize the
information requested (see Appendix A, item 24).

**Multicollinearity and singularity.** MANCOVA functions best when dependent variables
are moderately correlated, so I assessed for multicollinearity and singularity (Pallant, 2013;
Tabachnick et al., 2014). Adult relationship health scores and behavioral self-regulation scores
are moderately correlated (i.e., absolute $r$ values between .31 and .43) (Cohen, 1988). This
indicates the absence of multicollinearity and singularity.

**Path analysis.** The assumptions include sample size, normality, linearity, outliers,
multicollinearity, singularity, and normality, linearity, homoscedasticity, and independence of
residuals.

**Sample size.** The sample size exceeds Kline’s (2016) recommendation of at least 200
participants ($N = 366$).

**Normality, linearity, and outliers.** I checked for normality, linearity, outliers, and extreme
points for all continuous variables in the path model (see above discussion on normality,
linearity, outliers, and extreme points). A boxplot of the independent variable, total ACEs score,
indicated no outliers.
**Multicollinearity and singularity.** Independent and moderator variables are not highly correlated, and are not combinations of each other (Keith, 2015; Pallant, 2013) (see Table 5). Further, collinearity statistics show large tolerance values (i.e., values greater than .88), and small variance inflation factor (VIF) values (i.e., values less than 1.13).

**Normality, linearity, homoscedasticity, and independence of residuals.** I inspected the normal probability plot of the regression standardized residual and the standardized residuals scatterplot (Field, 2013; Keith, 2015; Pallant, 2013). The normal probability plot of the regression standardized residual showed a reasonably straight and positively oriented line, indicating normality. The standardized residuals scatterplot showed a reasonably rectangular-shaped distribution with most of the points accumulated in the center along the zero point. The residuals were also randomly distributed (i.e., no identifiable pattern). However, there was one potential outlier for adult relationship health scores. So, I inspected Mahalanobis distance values, and the maximum value was 13.65. This value is less than the chi-square critical value ($\chi^2 = 18.47$, $df = 4$, $p = .001$), and indicates the absence of any substantial outliers (Field, 2013; Pallant, 2013; Tabachnick et al., 2014). Also, there were no unusual or influential cases (i.e., no cases with standardized residual values above 3.0 or below -3.0). So, all assumptions were not violated.

**Research Questions and a Priori Hypotheses**

**Research Question One**

What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals?
H1: There will be statistically significant relationships among total ACEs scores, adult relationship health scores, behavioral self-regulation scores, and approximated average individual yearly income.

Pearson’s correlation analyses indicate that there is a statistically significant, yet small, negative relationship between total ACEs scores and adult relationship health scores ($r = -0.22, p < 0.01$), and between total ACEs score and approximated average individual yearly income ($r = -0.13, p < .05$). Further, there is a statistically significant, moderate, positive relationship between adult relationship health scores and relationship self-regulation strategies scores ($r = 0.31, p < 0.001$), and a statistically significant, moderate, negative relationship between adult relationship health scores and relationship effort scores ($r = -0.43, p < .001$), and between relationship self-regulation strategies scores and relationship effort scores ($r = -0.39, p < .001$). There is a non-significant, small, positive relationship between total ACEs scores and relationship effort scores ($r = 0.10$), and a non-significant, small, negative relationship between relationship self-regulation strategies scores and approximated average individual yearly income ($r = -0.10$). Finally, there is no relationship between total ACEs scores and relationship self-regulation strategies scores ($r = 0.06$), and between approximated average individual yearly income and adult relationship health scores ($r = -0.06$), and between approximated average individual yearly income and relationship effort scores ($r = 0.03$) (see Table 4).
Table 4  *Pearson Correlations Between Independent, Dependent, Mediator, and Covariate Variables*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total ACEs scores</th>
<th>Adult relationship health scores</th>
<th>Relationship self-regulation strategies scores</th>
<th>Relationship effort scores</th>
<th>Approx. average individual yearly income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ACEs scores</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult relationship health scores</td>
<td>-0.22***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship self-regulation strategies scores^</td>
<td>-0.06</td>
<td>0.31***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship effort scores</td>
<td>0.10</td>
<td>-0.43***</td>
<td>-0.39***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Approx. average individual yearly income^</td>
<td>-0.13*</td>
<td>-0.06</td>
<td>-0.10</td>
<td>0.03</td>
<td>1</td>
</tr>
</tbody>
</table>

* N = 366; ^ one missing data; *p < .05, two-tailed; ***p < .001, two-tailed.

H2: There will be statistically significant relationships among race and ethnicity, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

Pearson’s correlation analyses indicate that there is a statistically significant, yet small, positive relationship between race and ethnicity and total ACEs scores (r = .21, p < .001), and a statistically significant, yet small, negative relationship between race and ethnicity and adult relationship health scores (r = -0.16, p < .01). There is no relationship between race and ethnicity and relationship self-regulation strategies scores (r = -0.01), and between race and ethnicity and relationship effort scores (r = 0.05), and between race and ethnicity and approximated average individual yearly income (r = -0.00). Considering curvilinear relationships for race and ethnicity Groups 2 (i.e., Hispanic or Latino White) and 3 (i.e., Non-Hispanic White), Spearman’s rho
correlations indicate the following, a statistically significant, yet small, positive relationship between race and ethnicity and total ACEs scores \((\rho = .23, p < .001)\), a statistically significant, yet small, negative relationship between race and ethnicity and adult relationship health scores \((\rho = -.15, p < .01)\). There is no relationship between race and ethnicity and relationship self-regulation strategies scores \((\rho = -.02)\), and between race and ethnicity and relationship effort scores \((\rho = .05)\) (see Table 5 and Table 6 for a complete list of correlations by levels of moderator variables).

**H3:** There will be statistically significant relationships among gender, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

Pearson’s correlation analyses indicate that there is a statistically significant, moderate, negative relationship between gender and approximated average individual yearly income \((r = -.30, p < .01)\), a statistically significant, yet small, positive relationship between gender and total ACEs scores \((r = .16, p < .01)\), and between gender and relationship self-regulation strategies scores \((r = .15, p < .01)\). There is a statistically significant, yet small, negative relationship between gender and adult relationship health scores \((r = -.12, p < .05)\), and there is no relationship between gender and relationship effort scores \((r = .02)\) (see Tables 5 and 6).

**H4:** There will be a statistically significant relationship between children status and adult relationship health scores.

Pearson’s correlation analyses indicate that there is a statistically significant, yet small, negative relationship between children status and adult relationship health scores \((r = -.12, p < .05)\). There is a non-significant, small, positive relationship between children status and total ACEs scores \((r = .10)\), and there is no relationship between children status and relationship self-
regulation strategies scores \((r = -.03)\), and between children status and relationship effort scores \((r = .02)\), and between children status and approximated average individual yearly income \((r = -.04)\) (see Tables 5 and 6).

**Table 5 Pearson’s and Spearman’s rho Correlations Between Independent, Dependent, Mediator, and Covariate Variables by Moderator Variables**

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Race and Ethnicity</th>
<th>Children Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ACEs scores</td>
<td>.16**</td>
<td>.21(.23)***</td>
<td>.10</td>
</tr>
<tr>
<td>Adult relationship health scores</td>
<td>-.12*</td>
<td>-.16(-.15)**</td>
<td>-.12*</td>
</tr>
<tr>
<td>Relationship self-regulation strategies scores^</td>
<td>.15**</td>
<td>-.01(-.02)</td>
<td>-.03</td>
</tr>
<tr>
<td>Relationship effort scores</td>
<td>.02</td>
<td>.05(.05)</td>
<td>.02</td>
</tr>
<tr>
<td>Approx. average individual yearly income^</td>
<td>-.30**</td>
<td>-.00</td>
<td>-.04</td>
</tr>
</tbody>
</table>

\(N = 366; \) ^ one missing data; *\(p < .05\), two-tailed; **\(p < .01\), two-tailed; ***\(p < .001\), two-tailed; Spearman’s rho correlations in brackets.

I also conducted partial correlation analyses to control for approximated average individual yearly income (Pallant, 2013). I compared Pearson’s and Spearman’s rho correlations to partial correlations, and the coefficients either remained the same, or slightly decreased or increased. Further, all statistically significant correlations remained significant.
Table 6 Pearson’s and Spearman’s rho Correlations Between Independent, Dependent, and Mediator Variables by Levels of Moderator Variables

<table>
<thead>
<tr>
<th>Moderator Variables</th>
<th>Total ACEs scores</th>
<th>Adult relationship health scores</th>
<th>Relationship self-regulation strategies scores</th>
<th>Relationship effort scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Total ACEs scores</td>
<td>1</td>
<td>-.21**</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>Adult relationship health scores</td>
<td>-</td>
<td>1</td>
<td>-.51***</td>
</tr>
<tr>
<td></td>
<td>Relationship self-regulation strategies scores^</td>
<td>-</td>
<td>-</td>
<td>-.37***</td>
</tr>
<tr>
<td></td>
<td>Relationship effort scores</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>Total ACEs scores</td>
<td>1</td>
<td>-.19**</td>
<td>-.18*</td>
</tr>
<tr>
<td></td>
<td>Adult relationship health scores</td>
<td>-</td>
<td>1</td>
<td>-.38***</td>
</tr>
<tr>
<td></td>
<td>Relationship self-regulation strategies scores</td>
<td>-</td>
<td>-</td>
<td>-.42***</td>
</tr>
<tr>
<td></td>
<td>Relationship effort scores</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Children Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have no children</td>
<td>Total ACEs scores</td>
<td>1</td>
<td>-.17</td>
<td>-.12</td>
</tr>
<tr>
<td>or Have at least one child over the age of 18</td>
<td>Adult relationship health scores</td>
<td>-</td>
<td>1</td>
<td>.21*</td>
</tr>
<tr>
<td></td>
<td>Relationship self-regulation strategies scores^</td>
<td>-</td>
<td>-</td>
<td>-.31***</td>
</tr>
</tbody>
</table>
Have at least one child under the age of 18

<table>
<thead>
<tr>
<th>Race and Ethnicity</th>
<th>Relationship effort scores</th>
<th>Total ACEs scores</th>
<th>Adult relationship health scores</th>
<th>Relationship self-regulation strategies scores^</th>
<th>Relationship effort scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-.22***</td>
<td>-.04</td>
<td>.35***</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.22(-.23)*</td>
<td>-.27(.33)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.32(-.34)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-.22(-.16)</td>
<td>-.12(-.11)</td>
<td>.51(.51)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.49(-.48)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-.27(-.29)**</td>
<td>-.01(.04)</td>
<td>.12(.07)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, ***p < 0.001
<table>
<thead>
<tr>
<th></th>
<th>Group 4</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship self-regulation strategies scores</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relationship effort scores</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total ACEs scores</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Adult relationship health scores</td>
<td>- 1</td>
<td>- 1</td>
</tr>
<tr>
<td>Relationship self-regulation strategies scores^</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Relationship effort scores</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

$N = 366; ^{\text{\textsuperscript{\textdagger}}} \text{one missing data}; ^{\text{\textdaggerdagger}}p < .05, \text{two-tailed}; ^{\text{\textdaggerddagger}}p < .01, \text{two-tailed}; ^{\text{\textdaggerddagger\textdaggerddagger}}p < .001, \text{two-tailed}; \text{Spearman’s rho correlations in brackets.}$
Testing the statistical significance of the difference between two correlation coefficients. Pallant (2013) suggests determining if the difference between two correlation coefficients are significant and assessing the likelihood that the difference in correlations occurred by chance due to sampling error (i.e., no true difference in the strength of the correlations). The current study includes three moderator variables (i.e., gender, race and ethnicity, and children status). Gender and children status include two independent groups, and race and ethnicity include five independent groups. I tested the statistical significance of the difference between correlation coefficients for gender and children status groups, but not for race and ethnicity groups (more than two independent groups).

To ensure that the samples are reasonably normally distributed, I used the Fisher r-to-z transformation to convert all r values into standard scores (i.e., z scores). I then calculated and assessed z observed values. If these values are between -1.96 and +1.96, then there is not a statistically significant difference between the correlation coefficients. However, if these values are outside these two boundaries, then there is a statistically significant difference between the correlation coefficients (i.e., able to reject the null hypothesis).

Assumptions. I checked the required assumptions for gender and children status groups; r values are derived from random samples, participants in each demographic factor group category are independent, the distribution of scores for mediator and dependent variables are reasonably normal, and each gender and children status group has more than 20 participants (Pallant, 2013).

Results. Observed z values for each correlation between independent, dependent, and mediator variables indicate no statistically significant difference in the strength of the correlations between males and females, and between individuals with no children or at least one child over the age of 18 and individuals with at least one child under the age of 18.
Research Question Two

Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate an ACEs score of three or less and individuals who indicate an ACEs score of four or more?

H₁: Individuals who indicate a total ACEs score of three or less will have significantly higher scores on behavioral self-regulation and adult relationship health compared to individuals who indicate a total ACEs score of four or more, who will have significantly lower scores on behavioral self-regulation and adult relationship health.

I conducted a between-groups MANCOVA to explore differences in behavioral self-regulation scores and adult relationship health scores, for individuals with a total ACEs score of three or less and individuals with a total ACEs score of four or more. I controlled for approximated average individual yearly income. Multivariate tests of significance indicate a statistically significant mean difference between both groups on a linear combination of adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores), $F(3, 359) = 5.90, p = .001$; Pillai’s Trace = .047; $\eta^2_p = .047$. I used Pillai’s Trace, the more robust statistic, since the groups had unequal sample sizes (Tabachnick et al., 2014).

Univariate tests of between-subjects effects for each dependent variable, using a Bonferroni adjustment (i.e., a more conservative $\alpha$ of .017) which decreases the probability of a Type 1 error (i.e., finding significance when there is none), indicate that after controlling for income, the only statistically significant mean difference between individuals with a total ACEs score of three or less and individuals with a total ACEs score of four or more is their adult relationship health scores, $F(1, 361) = 17.76, p = .000, \eta^2_p = .047$. This shows a small to medium effect size (Cohen, 1988), and reveals that about 5% of the variance in adult relationship
health is explained by total ACEs scores. Univariate results for relationship self-regulation strategies and relationship effort are not provided; these variables were non-significant. Also, when controlling for total ACEs score, there was not a statistically significant relationship between income and adult relationship health, relationship self-regulation strategies, and relationship effort (i.e., all \( p \) values > .05, and all \( \eta^2 \) values are very small). So, income was not significant, did not explain much variance, and minimally adjusted the composite dependent variable (Pallant, 2013). Thus, I did not include income in the path analyses. Finally, a comparison of group means using estimated marginal means (i.e., adjusted means with the effect of income removed), showed that individuals with a total ACEs score of three or less had higher mean scores on adult relationship health (\( M = 3.86, SE = .06 \)) than individuals with a total ACEs score of four or more (\( M = 3.50, SE = .06 \)) (see Table 7).

Table 7 Group Means

<table>
<thead>
<tr>
<th>Independent Groups</th>
<th>Dependent Variables</th>
<th>( M )</th>
<th>( SD )</th>
<th>Adjusted Mean</th>
<th>( SE )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ACEs score of three or less(^{^\wedge}) ((n = 205))</td>
<td>Adult relationship health scores</td>
<td>3.85</td>
<td>.79</td>
<td>3.86***</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Relationship self-regulation strategies scores</td>
<td>37.53</td>
<td>7.19</td>
<td>37.60</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>Relationship effort scores</td>
<td>16.06</td>
<td>5.80</td>
<td>16.04</td>
<td>.39</td>
</tr>
<tr>
<td>Total ACEs score of four or more(^{^\wedge}) ((n = 159))</td>
<td>Adult relationship health scores</td>
<td>3.51</td>
<td>.80</td>
<td>3.50***</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Relationship self-regulation strategies scores</td>
<td>36.89</td>
<td>7.11</td>
<td>36.80</td>
<td>.57</td>
</tr>
<tr>
<td></td>
<td>Relationship effort scores</td>
<td>17.07</td>
<td>5.28</td>
<td>17.10</td>
<td>.44</td>
</tr>
</tbody>
</table>

\( N = 364; ^{^\wedge} \) one missing data; *** \( p < .001; \) approximated average individual yearly income evaluated at $13,980.20.
**Research Question Three**

Do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores?

H1: Demographic factors will moderate the relationship between total ACEs scores and adult relationship health scores.

I centered the independent variable, total ACEs score, to avoid potential multicollinearity issues with the interaction terms (Aiken & West, 1991; Keith, 2015). Next, I created dummy variables for each categorical moderator variable (Muthen & Muthen, 2015). Dummy variables included: Female = 0, Male = 1; for race and ethnicity groups, I selected Group 3: Non-Hispanic White as the reference/control group (coded as 0), and all other race and ethnicity groups were coded as 1; and have no children/children over the age of 18 = 0, have children under the age of 18 = 1. Then, I conducted three path models to explore if gender, race and ethnicity, and children status moderated the relationship between total ACEs score and adult relationship health score.

The fit of Model 1 (Gender) was adequate (i.e., the proposed model fits the sample data) (Hu & Bentler, 1999; Kline, 2005). The chi-square test was significant, χ² (0) = .00, p = .00; however, researchers suggest checking other fit indices (Lent, Lopez, Brown, & Gore, 1996). Additional fit indices include the Tucker-Lewis index (TLI) = 1.00; comparative fit index (CFI) = 1.00; standardized root mean square residual (SRMR) = .00; and root mean square error of approximation (RMSEA) = .00, 90% confidence interval (CI) [0.00, 0.00], p < .05. Model results indicated that gender was not significant (b = .14, p = .10, CI [-.03, .30]). ACEs score was significant (b = -.06, p < .01, CI [-.11, -.02]) in that for every one-point increase in ACEs score, adult relationship health score decreased by .06, and for every SD increase in total ACEs score, there was a .20 SD decrease in adult relationship health scores. This indicates a small effect size
(Cohen, 1988). The interaction between gender and ACEs score was not significant \( (b = -0.004, p = 0.90, CI [-0.07, 0.06]) \). Overall, this path model accounted for 5.4% of the variance in adult relationship health scores. See Figure 2 and Table 8 for a complete list of unstandardized and standardized regression paths.

**Figure 2. Moderation Path Model 1 (Gender)**

![Diagram of Moderation Path Model 1 (Gender)](image)

The fit of Model 2 (Race and Ethnicity) was also adequate. The chi-square test was significant, \( \chi^2 (0) = 0.00, p = 0.00; \) TLI = 1.00; CFI = 1.00; SRMR = 0.00; and RMSEA = 0.00, 90% CI [0.00, 0.00], \( p < 0.05 \). Model results indicated that Group 1 (Hispanic/Latino – Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander Other) was not significant \( (b = -0.02, p = 0.86, CI [-0.25, 0.21]) \); Group 2 (Hispanic/Latino White) was not significant \( (b = -0.03, p = 0.78, CI [-0.28, 0.21]) \); and Group 4 (Non-Hispanic Black/African American) was not significant \( (b = -0.25, p = 0.06, CI [-0.50, 0.01]) \). However, Group 5 (Non-Hispanic – Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific...
Islander) was significant ($b = -.42, p < .05, CI [-.77, -.08])$. Compared to Group 3 individuals (i.e., Non-Hispanic White), Group 5 individuals had lower adult relationship health scores (.42 score reduction), and a .52 SD decrease in adult relationship health scores. This indicates a medium effect size (Cohen, 1988). ACEs score was also significant ($b = -.08, p < .01, CI [-.13, -.02]$) in that for every one-point increase in total ACEs score, adult relationship health score decreased by .08, and for every SD increase in total ACEs score, there was a .24 SD decrease in adult relationship health scores. This indicates a small effect size (Cohen, 1988). Additionally, the interactions between total ACEs score and each race and ethnicity group were not significant. Group 1 interaction ($b = .01, p = .79, CI [-.07, .10]$); Group 2 interaction ($b = -.00, p = .98, CI [-.10, .10]$); Group 4 interaction ($b = .09, p = .10, CI [-.02, .19]$); and Group 5 interaction ($b = -.07, p = .29, CI [-.20, .06]$). Overall, this path model accounted for 8.1% of the variance in adult relationship health scores (see Figure 3 and Table 8).

*Figure 3. Moderation Path Model 2 (Race and Ethnicity)*
Finally, the fit of Model 3 (Children Status) was adequate. The chi-square test was significant, $\chi^2 (0) = .00$, $p = .00$; TLI = 1.00; CFI = 1.00; SRMR = .00; and RMSEA = .00, 90% CI [0.00, 0.00], $p < .05$. Model results indicated that children status was not significant ($b = -.18$, $p = .05$, CI [-.36, -.00]). ACEs score was also not significant ($b = -.05$, $p = .08$, CI [-.11, .01]), and the interaction between total ACEs score and children status was not significant ($b = -.02$, $p = .59$, CI [-.09, .05]) (see Figure 4 and Table 8).

Figure 4. Moderation Path Model 3 (Children Status)
Table 8  *Unstandardized and Standardized Regression Path Coefficients for Moderation Path Models*

<table>
<thead>
<tr>
<th>Dependent Variable and Path</th>
<th>Moderation Path Model</th>
<th>Unstandardized Regression Path</th>
<th>SE</th>
<th>95% CI</th>
<th>Standardized Regression Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult relationship health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACEs</td>
<td></td>
<td>-06**</td>
<td>.02</td>
<td>-11, -02</td>
<td>-.20**</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>.14</td>
<td>.09</td>
<td>-.03, .30</td>
<td>.17</td>
</tr>
<tr>
<td>ACEs*Gender</td>
<td></td>
<td>-.00</td>
<td>.03</td>
<td>-.07, .06</td>
<td>-.01</td>
</tr>
<tr>
<td>Adult relationship health</td>
<td></td>
<td>-08**</td>
<td>.03</td>
<td>-13, -02</td>
<td>-.24**</td>
</tr>
<tr>
<td>ACEs</td>
<td></td>
<td>-02</td>
<td>.12</td>
<td>-.25, .21</td>
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*N* = 366; *p* < .05, two-tailed; **p* < .01, two-tailed.

**Research Question Four**

Do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores?

**H₁**: Behavioral self-regulation scores will mediate the relationship between total ACEs scores and adult relationship health scores.

I conducted two path models to explore if relationship self-regulation strategies scores and relationship effort scores mediated the relationship between total ACEs scores and adult relationship health scores. I utilized bootstrapping (i.e., a resampling procedure) to calculate 95% bias-corrected bootstrap CIs (Fox, 2008; MacKinnon, Lockwood, & Williams, 2004;
MacKinnon, 2008); and a total of 10,000 bootstrap samples to calculate indirect effects, and to test the significance level of these effects (Mallinckrodt, Abraham, Wei, & Russell, 2006; Shrout & Bolger, 2002). If the CI for the mean estimates of these 10,000 indirect effect approximations does not include the value of zero, the indirect effect is statistically significant at the $\alpha = .05$ level (Shrout & Bolger, 2002).

The fit of Model 1 (Relationship Self-Regulation Strategies) was adequate. The chi-square test was significant, $\chi^2 (0) = .00, p = .00$; TLI = 1.00; CFI = 1.00; SRMR = .00; and RMSEA = .00, 90% CI [0.00, 0.00], $p < .05$. Model results indicated that relationship self-regulation strategies score was significant ($b = .02, p < .05$, CI [.01, .04] in that for every one-point increase in relationship self-regulation strategies score, adult relationship health score increased by .02; and for every $SD$ increase in relationship self-regulation strategies score, there was a .26 $SD$ increase in adult relationship health score. This indicates a small effect size (Cohen, 1988). The relationship between ACEs score and adult relationship health score was not significant (i.e., no direct effect) ($b = .01, p = .46$, CI [-.02, .05], and the relationship between ACEs score and relationship self-regulation strategies score was not significant ($b = -.20, p = .35$, CI [-.71, .15]. Consequently, the indirect effect from total ACEs score to relationship self-regulation strategies score to adult relationship health score was not significant ($b = -.00, SE = .00, p = .34$, CI [-.01, .01]. Overall, this path model accounted for 6.9% of the variance in adult relationship health scores (see Figure 5 and Table 9).

The fit of Model 2 (Relationship Effort) was adequate. The chi-square test was significant, $\chi^2 (0) = .00, p = .00$; TLI = 1.00; CFI = 1.00; SRMR = .00; and RMSEA = .00, 90% CI [0.00, 0.00], $p < .05$. Model results indicated that relationship effort score was significant ($b = -.06, p < .001$, CI [-.08, -.05] in that for every one-point increase in relationship effort score,
adult relationship health score decreased by .06; and for every SD increase in relationship effort score, there was a .43 SD decrease in adult relationship health score. This indicates a medium effect size (Cohen, 1988). The relationship between ACEs score and adult relationship health score was not significant (i.e., no direct effect) \(b = .01, p = .64, \text{CI} \ [-.02, .04]\), and the relationship between ACEs score and relationship effort score was not significant \(b = -.02, p = .89, \text{CI} \ [-.24, .20]\). Hence, the indirect effect from total ACEs score to relationship effort score to adult relationship health score was not significant \(b = .00, SE = .01, p = .89, \text{CI} \ [-.01, .02]\). This path model accounted for 18.6% of the variance in adult relationship health score (see Figure 6 and Table 9).

**Figure 5. Mediation Path Model 1 (SRS: Relationship Self-Regulation Strategies)**

![Diagram](image)

**Figure 6. Mediation Path Model 2 (RE: Relationship Effort)**

![Diagram](image)
Table 9 *Unstandardized and Standardized Regression Path Coefficients for Mediation Path Models*

<table>
<thead>
<tr>
<th>Dependent Variables and Path</th>
<th>Mediation Path Model</th>
<th>Unstandardized Regression Path</th>
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<th>95% CI</th>
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N = 366; *p < .05, two-tailed; ***p < .001, two-tailed; SRS: Relationship Self-Regulation Strategies; RE: Relationship Effort.

**Chapter Summary**

This chapter included the study’s results. First, I explained data screening and cleaning, and how I handled missing data. I found no errors and left the minimal random missing data in the archival data set. I also reported results of preliminary analyses and descriptive statistics. The sample included 366 participants (i.e., 164 males [44.8%] and 202 females [55.2%]). The mean age was 35.16 years (SD = 11.47 years).

I also conducted assumption testing for correlational analyses, MANCOVA, and path analysis. There were no major violations of any assumptions, so I proceeded with parametric tests to answer all research questions. This study examined seven hypotheses to answer the four research questions of interest: (a) What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals? (b) Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores
among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more? (c) Controlling for average yearly income, do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores? And (d) Controlling for average yearly income, do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores?

For the first research question, I found a small, statistically significant, negative relationship between total ACEs scores and adult relationship health scores, and between total ACEs scores and approximated average individual yearly income. There was a moderate, statistically significant, positive relationship between adult relationship health scores and relationship self-regulation strategies scores, and a moderate, statistically significant, negative relationship between adult relationship health scores and relationship effort scores, and between relationship self-regulation strategies scores and relationship effort scores. There was a small, non-significant, positive relationship between total ACEs scores and relationship effort scores, and a small, non-significant, negative relationship between relationship self-regulation strategies scores and approximated average individual yearly income. There was no relationship between total ACEs scores and relationship self-regulation strategies scores, and between approximated average individual yearly income and adult relationship health scores, and between approximated average individual yearly income and relationship effort scores.

Additionally, there was a small, statistically significant, positive relationship between race and ethnicity and total ACEs scores, and a small, statistically significant, negative relationship between race and ethnicity and adult relationship health scores. There was no relationship between race and ethnicity and relationship self-regulation strategies scores, race and ethnicity and relationship effort scores, and race and ethnicity and approximated average
individual yearly income. There was a moderate, statistically significant, negative relationship between gender and approximated average individual yearly income, and a small, statistically significant, positive relationship between gender and total ACEs scores, and between gender and relationship self-regulation strategies scores. Also, there was a small, statistically significant, negative relationship between gender and adult relationship health scores. There was no relationship between gender and relationship effort scores.

Results also indicated a small, statistically significant, negative relationship between children status and adult relationship health scores, and a small, non-significant, positive relationship between children status and total ACEs scores. There was no relationship between children status and relationship self-regulation strategies scores, children status and relationship effort scores, and children status and approximated average individual yearly income. Finally, there were no statistically significant differences in the strength of the correlations between total ACEs score, adult relationship health score, and behavioral self-regulation scores, for males and females, and for individuals with no children or at least one child over the age of 18, and individuals with at least one child under the age of 18.

For the second research question, I found that after statistically controlling for approximated average individual yearly income, there was a statistically significant between-group mean difference in adult relationship health scores. Individuals with a total ACEs score of three or less had higher mean scores on adult relationship health compared to individuals with a total ACEs score of four or more. Partial eta squared indicated a small to medium effect (Cohen, 1988), and 5% of the variance in adult relationship health scores was explained by total ACEs score. MANCOVA also showed that approximated average individual yearly income was not a significant covariate. Therefore, I did not include income in the path analyses.
For the third research question, I found that demographic factors did not moderate the relationship between total ACEs scores and adult relationship health scores. First, gender was not significant. However, ACEs score was significant (a small effect). The interaction between gender and ACEs score was not significant and only 5.4% of the variance in adult relationship health scores was explained by this model (see Figure 2 and Table 8). Next, Group 1 (i.e., Hispanic or Latino - Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander), Group 2 (i.e., Hispanic or Latino White), and Group 4 (i.e., Non-Hispanic Black/African American) were not significant. But, Group 5 (i.e., Non-Hispanic - Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) was significant, revealing that in comparison to Group 3 (i.e., Non-Hispanic White), these individuals had lower adult relationship health scores (a medium effect). ACEs score was also significant (a small effect). The interactions between total ACEs score and each race and ethnicity group were not significant. Overall, this model explained 8.1% of the variance in adult relationship health scores. Finally, children status, ACEs score, and the interaction between children status and ACEs score were not significant.

For the fourth research question, I found that behavioral self-regulation scores did not mediate the relationship between total ACEs scores and adult relationship health scores. First, relationship self-regulation strategies score was significant (a small effect). The relationship between ACEs score and adult relationship health score was not significant (no direct effect), and the relationship between ACEs score and relationship self-regulation strategies score was not significant. Thus, the indirect effect from total ACEs score to relationship self-regulation strategies score to adult relationship health score was not significant. This path model accounted for 6.9% of the variance in adult relationship health scores. Next, relationship effort score was
significant (a medium effect). The relationship between ACEs score and adult relationship health score was not significant (no direct effect), and the relationship between ACEs score and relationship effort score was not significant. Subsequently, the indirect effect from total ACEs score to relationship effort score to adult relationship health score was not significant. However, this path model accounted for 18.6% of the variance in adult relationship health scores.
CHAPTER FIVE: DISCUSSION

This chapter discusses the study’s findings in greater detail. First, I restate the research questions and a priori hypotheses, then I summarize and discuss the results. Next, I provide the implications for teaching and practice, limitations of the current study, as well as recommendations for future research. I conclude the chapter with a summary.

Research Questions and a Priori Hypotheses

Research questions and a priori hypotheses include:

1. What are the relationships among total ACEs scores, behavioral self-regulation scores, adult relationship health scores, demographic factors, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals?

H1: There will be statistically significant relationships among total ACEs scores, adult relationship health scores, behavioral self-regulation scores, and approximated average individual yearly income.

H2: There will be statistically significant relationships among race and ethnicity, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

H3: There will be statistically significant relationships among gender, and total ACEs scores, behavioral self-regulation scores, adult relationship health scores, and approximated average individual yearly income.

H4: There will be a statistically significant relationship between children status and adult relationship health scores.
2. Controlling for average yearly income, is there a significant difference in behavioral self-regulation scores and adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more?

H1: Individuals who indicate a total ACEs score of three or less will have significantly higher scores on behavioral self-regulation and adult relationship health compared to individuals who indicate a total ACEs score of four or more, who will have significantly lower scores on behavioral self-regulation and adult relationship health.

3. Do demographic factors moderate the relationship between total ACEs scores and adult relationship health scores?

H1: Demographic factors will moderate the relationship between total ACEs scores and adult relationship health scores.

4. Do behavioral self-regulation scores mediate the relationship between total ACEs scores and adult relationship health scores?

H1: Behavioral self-regulation scores will mediate the relationship between total ACEs scores and adult relationship health scores.

**Discussion of Results**

Project T.O.G.E.T.H.E.R. aimed to strengthen family and relationship stability for economically marginalized, low-income, ethnically and racially diverse individuals and couples. These populations are often at-risk for family fragmentation and unhealthy parental and couple relationships (Barajas-Gonzalez & Brooks-Gunn, 2014; Carlson et al., 2014; Conger et al., 2010; Hummer et al., 2010; Karney et al., 2005; Masarik et al., 2016; Umberson et al., 2014). The current study consisted of Project T.O.G.E.T.H.E.R. participants and included racially and
ethnically diverse males and females with varied education levels. About 43% of participants were employed full-time and 18% employed part-time, however 81% lived below the federal poverty threshold. Thus, it is safe to deduce that these participants faced several contextual stressors and socioeconomic challenges.

**Adverse Childhood Experiences (ACEs)**

Participants in the seminal ACEs study were middle class and above, insured, and only 6% reported an ACEs score of four or more (Felitti et al., 1998). In another ACEs study with participants who were primarily Non-Hispanic White (81%), married or widowed (62%), with at least a high school education, 17% reported an ACEs score of four or more (Font & Maguire-Jack, 2016). Markedly, ACEs studies with more diverse populations report higher incidences of ACEs. For example, in the Philadelphia Urban ACEs study, 67% of participants had at least one ACE and 37% had four or more ACEs (Center for Health Care Strategies, 2016; Public Health Corporation, 2013). Further, in a sample of 1,202 low-income, minority individuals (primarily African American [93%]) who lived in poverty-stricken, urban neighborhoods in Chicago, 62% reported one or more ACE, and 13% reported four or more ACEs (Giovanelli et al., 2016).

In the current study, 56% of participants reported an ACEs score of three or below, and 44% reported an ACEs score of four or more. Therefore, almost half of these participants are potentially at risk for suboptimal physical, mental/emotional, and relational health outcomes. Other possible outcomes include suicidality, drug and alcohol use, and an early death. These high rates of childhood adversity may be due in part to participants being from historically marginalized groups, having low-income statuses, and living below federal poverty thresholds.
Adult Relationship Health

All participants were in a relationship; 92% were either married or in a committed relationship \((n = 338)\) and the average length of relationship was 9 years. This is contrary to Gibson-Davis’ (2005) claim that economically disadvantaged individuals are less likely to marry due to financial instability. Additionally, 55.5% of participants described their relationship as “good” \((n = 202)\) and 34.3% described their relationship as “fair” \((n = 125)\). The average adult relationship health score was 3.70 \((SD = .82)\), and males experienced slightly higher adult relationship health than females \((M = 3.80\) and \(M = 3.61\) respectively). However, both mean scores represent relatively satisfied, non-distressed individuals (Hendrick, 1988). Prior research on satisfaction levels among married couples indicate similar findings (Amato et al., 2007; Jackson et al., 2014; Rogers et al., 2000; Stevenson et al., 2009).

Regarding race and ethnicity, adult relationship health scores were somewhat comparable among the groups. Group 1 (i.e., Hispanic or Latino – Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) had the highest mean score \((i.e., 3.82)\), followed by Group 2 (i.e., Hispanic or Latino White) \((i.e., 3.75)\), and Group 3 \((i.e., Non-Hispanic White) \((i.e., 3.73)\). Group 4 \((i.e., Non-Hispanic Black/African American) and Group 5 \((i.e., Non-Hispanic - Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) had the lowest mean scores \((i.e., 3.54 and 3.33\) respectively). However, all mean scores indicate relatively satisfied, non-distressed individuals (Hendrick, 1988). This finding is a bit surprising considering the negative impact of economic disadvantage and minority status on adult relationship health outcomes (Carlson et al., 2014; Conger et al., 1999, 2010; Karney et al., 2005; Hummer et al., 2010; Masarik et al., 2016). With regards to children status, participants with children under the age of 18 experienced slightly lower adult relationship health than
participants with no children or children over the age of 18 (i.e., $M = 3.63$ and $M = 3.85$ respectively). Again, these mean scores show relatively satisfied, non-distressed individuals (Hendrick, 1988).

Generally, participants seemed to value their relationship and feel satisfied with their partner. Average adult relationship health scores indicated that participants’ relationship needs and expectations were being met by their partner, and they possibly viewed their relationship as positive compared to others’ relationships. Higher average adult relationship health scores also revealed that participants probably loved their partners and had minimal regrets about their relationships (Hendrick, 1988). One exception is Group 5 (i.e., Non-Hispanic - Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) whose average adult relationship health score revealed potential relationship dissatisfaction and distress. However, Group 5 had only 26 participants, so this result should be interpreted with caution. Overall, these findings indicate that participants’ sense of fulfillment and satisfaction with their relationship seemed to offset the negative impact of having a historically disadvantaged status, facing chronic socioeconomic challenges, and experiencing childhood adversity.

Results also indicated that after controlling for the influence of income, participants with a total ACEs score of three or less had significantly higher adult relationship health scores than participants with a total ACEs score of four or more ($M = 3.86$ and $M = 3.50$ respectively). Again, both average scores indicate relatively satisfied, non-distressed individuals (Hendrick, 1988), and only 5% of the variance in adult relationship health scores was explained by total ACEs score. There were no significant between-group mean differences in relationship self-regulation strategies scores and relationship effort scores. Individuals with a total ACEs score of three or less and individuals with a total ACEs score of four or more had similar relationship
self-regulation strategies scores and relationship effort scores. Additionally, income was not a significant covariate and did not account for much variance in adult relationship health scores, relationship self-regulation strategies scores, and relationship effort scores. This finding seems surprising considering the vast amount of research linking low-income, economically disadvantaged status to poor adult relationship health outcomes.

**Behavioral Self-Regulation**

The mean score for relationship self-regulation strategies was 37.22 ($SD = 7.17$). Females had slightly higher scores than males (i.e., $M = 38.18$ and $M = 36.02$ respectively). Further, Group 3 (Non-Hispanic White) had the lowest scores (i.e., $M = 35.84$), Group 4 (Non-Hispanic Black/African American) had the highest scores (i.e., $M = 37.98$), and all other race and ethnicity groups had average scores between 37 and 37.98. Participants with no children or children over the age of 18 had slightly higher scores than participants with children under the age of 18 (i.e., $M = 37.51$ and $M = 37.09$ respectively). These average scores are high and suggest that participants generally utilized relationship self-regulation strategies to improve their relationship (Wilson et al., 2005). For example, they possibly applied ideas about healthy relationships to their relationship and made personal changes that enhanced their relationship.

Regarding relationship effort, the mean score was 16.50 ($SD = 5.58$). Females, on average, had slightly higher mean scores than males (i.e., $M = 16.61$ and $M = 16.35$ respectively). Group 2 (Hispanic or Latino White) had the highest scores (i.e., $M = 17.38$) and Group 1 (Hispanic or Latino - Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) had the lowest scores (i.e., $M = 15.57$). All other race and ethnicity groups had mean scores ranging from 16.40 to 16.97. Participants with no children or children over the age of 18 had slightly lower scores than participants with children under the
age of 18 (i.e., $M = 16.37$ and $M = 16.55$ respectively). These average scores are low and reveal that participants, in general, made intentional and consistent efforts to improve their relationship (Wilson et al., 2005). For example, they possibly felt empowered and capable of dealing with problems in their relationship and they faced their relationship problems head on (see Table 2).

**Moderation Path Models**

The current study found no significant interaction effects. Moderation path analyses showed that gender, race and ethnicity, and children status did not moderate the relationship between total ACES score and adult relationship health score.

**Moderation path model 1.** Gender was not significant; there was no significant difference between males and females in their adult relationship health scores. However, ACEs score was significant ($b = -.06, p < .01, CI [-.11, -.02]$) in that for every one-point increase in ACEs score, adult relationship health score decreased by .06, and for every $SD$ increase in total ACEs score, there was a .20 $SD$ decrease in adult relationship health scores. This is a small effect (Cohen, 1988), and the slope and confidence intervals were also close to zero. This path model explained just 5.4% of the variance in adult relationship health scores for both males and females (see Figure 2 and Table 8).

**Moderation path model 2.** Group 1 (Hispanic or Latino - Other, Black/African American, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander), Group 2 (Hispanic or Latino White), and Group 4 (Non-Hispanic Black/African American) were not significant; there was no significant difference in adult relationship health scores between individuals in each of these groups and individuals in Group 3 (Non-Hispanic White). However, Group 5 (Non-Hispanic - Other, Asian, American Indian/Alaska Native, Native Hawaiian/Other Pacific Islander) individuals were significantly different from Group 3 individuals ($b = -.42, p$}
< .05, CI [-.77, -.08]). Individuals in Group 5 had lower adult relationship health scores (.42 score reduction), and a .52 SD decrease in adult relationship health scores. This shows a medium effect (Cohen, 1988); however, Group 5 had a very small sample size (i.e., 26 participants), and the confidence interval was closely approaching zero. This finding should be interpreted with caution. Additionally, ACEs score was significant ($b = -.08, p < .01, CI [-.13, -.02]$); for every one-point increase in total ACEs score, adult relationship health score decreased by .08, and for every SD increase in total ACEs score, there was a .24 SD decrease in adult relationship health scores. This also indicates a small effect (Cohen, 1988), with a slope and confidence interval very close to zero. This path model explained 8.1% of the variance in adult relationship health scores (see Figure 3 and Table 8).

**Moderation path model 3.** Children status was not significant; there was no significant difference in adult relationship health scores between individuals with no children or children over the age of 18, and individuals with children under the age of 18. ACEs score was also not significant, revealing that it did not predict adult relationship health scores, and the interaction between total ACEs score and children status was also not significant (see Figure 4 and Table 8).

**Mediation Path Models**

The current study found no significant direct or indirect effects. Mediation path analyses indicated that behavioral self-regulation scores did not mediate the relationship between total ACES scores and adult relationship health scores.

**Mediation path model 1.** Relationship self-regulation strategies scores was significant ($b = .02, p < .05, CI [.01, .04]$); for every one-point increase in relationship self-regulation strategies score, adult relationship health score increased by .02, and for every SD increase in relationship self-regulation strategies score, there was a .26 SD increase in adult relationship health score.
Although statistically significant, this indicates a small effect (Cohen, 1988), and the slope and confidence intervals were also very close to zero. Next, the relationship between ACEs score and adult relationship health score was not significant (i.e., no direct effect), and the relationship between ACEs score and relationship self-regulation strategies score was not significant. Therefore, the indirect effect from total ACEs score to relationship self-regulation strategies score to adult relationship health score was not significant. Overall, this mediation path model explained only 6.9% of the variance in adult relationship health scores (see Figure 5 and Table 9).

**Mediation path model 2.** Relationship effort score was significant \( b = -.06, p < .001, \text{CI} [-.08, -.05]; \) for every one-point increase in relationship effort score, adult relationship health score decreased by .06, and for every SD increase in relationship effort score, there was a .43 SD decrease in adult relationship health score. This shows a medium effect (Cohen, 1988), and indicates that relationship effort significantly predicted adult relationship health outcomes for this population. Participants appeared to feel empowered to improve their relationship when challenges arose, and they possibly handled relationship stressors directly and did not try to avoid dealing with their problems. Next, the relationship between ACEs score and adult relationship health score was not significant (i.e., no direct effect), and the relationship between ACEs score and relationship effort score was not significant. So, the indirect effect from total ACEs score to relationship effort score to adult relationship health score was also not significant. This mediation path model explained 18.6% of the variance in adult relationship health scores (see Figure 6 and Table 9).

Overall, both mediation path models indicated no significant direct effects between total ACEs scores and adult relationship health scores. Also, total ACEs scores did not account for
significant variance in relationship self-regulation strategies scores or relationship effort scores (i.e., these relationships were non-significant). Consequently, there were no indirect effects. However, there were statistically significant relationships between relationship self-regulation strategies scores and adult relationship health scores and between relationship effort scores and adult relationship health scores (inverse relationship). However, it should be noted that the slopes and confidence intervals for all significant relationships were close to zero.

Implications

The current study’s findings have multiple implications for clinical practice and counselor education and supervision.

Clinical Practice

Mental health, marriage and family, and substance abuse counselors should assess for conventional and expanded ACEs when working with clients from historically marginalized groups. Clinicians should also complete a risk assessment for IPV victimization when working with women who experienced violent ACEs, and a risk assessment for IPV perpetration when working with men who disclose similar adverse violent experiences. In addition, clinicians should encourage economically disadvantaged and relationally distressed individuals and couples to use relationship self-regulation strategies and engage in relationship effort behaviors to improve their relationship.

Next, school counselors ought to be aware of the high rates of family fragmentation, poverty, and ACEs among underprivileged, racial and ethnic minority children. School counselors should be knowledgeable about the implications of these adverse circumstances and conceptualize at risk children’s social, behavioral, and psychological problems from a disadvantaged socioeconomic lens. Furthermore, school counselors can intervene to offset
suboptimal outcomes for children and their parents. They can conduct psychoeducation and counseling services for children and parents that focus on establishing familial support, building secure attachments, developing effective parenting practices, practicing stress management techniques, and creating healthy, stable relationships. School counselors can also link parents to community resources, such as agencies that provide money management services, job/career enhancement training, and long-term mental health services.

**Counselor Education and Supervision**

Counselor educators and supervisors need to teach counseling students about childhood adversity beyond childhood trauma and abuse. Counseling trainees should be made aware of the increased prevalence rate of both conventional and expanded ACEs among at-risk populations. ACEs such as having an incarcerated family member, witnessing maternal IPV, growing up in a single-parent home, living in an impoverished, crime-ridden, violent neighborhood, and/or being in the child welfare and juvenile justice system are just some of the experiences that warrant assessment. Counselor educators and supervisors should also educate students about the vast contextual and socioeconomic issues which surround historically marginalized populations. Further, students ought to learn about socioeconomically disadvantaged frameworks, developmental traumatology models, and cycle of violence theories. They can then apply this knowledge to conceptualize generationally disadvantaged clients and formulate socioeconomically responsive treatment plans.

**Evidence-Based Interventions**

The current study found that individuals who experienced four or more ACEs also experienced lower adult relationship health. Therefore, effective, affordable, and easily accessible interventions are needed to address this suboptimal outcome. First, access to
Community resources can offset the chronic effects of ACEs (Child Welfare Information Gateway, n.d.; Madsen & Abell, 2010). Community resources include job and career assistance, couples counseling, and financial security training (Charles et al., 2006; Conger et al., 1999). Establishing healthy relationships can also reduce the negative long-term effects of childhood adversity (Child Welfare Information Gateway, n.d.; Madsen & Abell, 2010). Healthy fatherhood and parenting programs as well as relationship enhancement programs (Charles et al., 2006; Conger et al., 1999) aim to teach at-risk populations about healthy and safe relationships and help them improve their relationships.

Relationship enhancement interventions such as individual and couple relationship education (RE) are preventive (Hawkins et al., 2008; Stanley et al., 1998). These programs also recognize the negative effects of economic disadvantage on adult relationship health outcomes for at-risk populations (Karney et al., 2005). RE is a group intervention that teaches individuals and couples about healthy communication, and effective problem-solving and conflict resolution. Individuals and couples also learn concrete tools to help them address complex relationship problems (Hawkins et al., 2008; Stanley et al., 1998). Research on the effectiveness of RE has consistently shown improved adult relationship health outcomes and reduced levels of individual distress for low-income, racially and ethnically diverse individuals and couples (Barden et al., 2015; Carlson et al., 2014; Hawkins et al., 2008). Ultimately, utilization of the abovementioned resources and interventions can help alleviate stressors related to economic hardship and improve family and relationship health outcomes (Charles et al., 2006; Conger et al., 2011; Karney et al., 2005). Additionally, interventions that promote behavioral self-regulation may be helpful.
Limitations

Variables can be predictive; however, they are not causal (Fraenkel et al., 2009; Pallant, 2013; Tabachnick et al., 2014). Further, retrospective reporting of ACEs (Brown, Scheflin, & Whitfield, 1999) and concurrent data collection on adult relationship health pose several limitations (McCarthy et al., 1999). For example, participants were required to remember specific ACEs which could be emotionally challenging and lead to underreporting (Femina, Yeager, & Lewis, 1990; Williams, 1995). Underreporting often results in accepting null hypotheses (Brown et al., 1999; Whitfield, Silberg, & Fink, 2001), and thus underestimating the relationship between ACEs and adult relationship health outcomes (Rothman, 1986).

Additional limitations include the potential violation of independence of observations, and the assumption that ordinal level ratings (i.e., Likert scales) used in the Relationship Assessment Scale (RAS) and the Behavioral Self-Regulation for Effective Relationships Scale (BSRERS) approximate interval level scaling. Also, there was no control for socially desirable responding bias on self-report measures (Pallant, 2013), and results are only generalizable to the population randomly sampled (Tabachnick et al., 2014). Finally, although statistically significant relationships were found, all confidence intervals and slopes (except for Group 5) were very close to zero. This indicates a lack of practical significance (Keith, 2015).

Recommendations for Future Research

High poverty rates and increased prevalence of family fragmentation among disadvantaged populations are significant issues in the U.S. (Hummer et al., 2010). The current study examined the influence of conventional ACEs on adult relationship health outcomes among economically marginalized, low-income, racially and ethnically diverse individuals. Future research ought to investigate the impact of both conventional and expanded ACEs on
adult relationship health outcomes. Expanded ACEs include exposure to community violence, insufficient social support, living in extreme poverty, experiencing discrimination, having historical trauma, and growing up in an unstimulating environment (De Bellis, 2001, 2005; Herman, 1992; Substance Abuse and Mental Health Services Administration, n.d.; 2016).

Additional expanded ACEs include growing up in a single-parent home, being in the child welfare system, and being involved in the juvenile justice system (Wade et al., 2014). Also, considering the recent events taking place at the U.S.-Mexico border, the adverse and traumatic experience of being separated from a loved one (Herman, 1992; Substance Abuse and Mental Health Services Administration, n.d.; 2016) needs the immediate attention of the counseling community. Future research should also investigate types of ACEs as opposed to total ACEs score (Font et al., 2016). Determining the relative impact of each type of ACE as opposed to considering each ACE equally, can augment the understanding of ACEs types as well as their specific implications. For example, all ACEs are linked to poor mental health outcomes; however abuse-related ACEs are uniquely associated with suicidality (Dube et al., 2001, 2003) and IPV outcomes (Whitfield et al., 2003).

Future research should also replicate Whitfield et al., and investigate gender differences, ACEs types, and risk of IPV victimization and perpetration in disadvantaged populations. Also, studies show that Black mothers (Hummer et al., 2010) and Black men (Umberson et al., 2014, 2016) have the poorest relationship outcomes. So, researchers should further examine race and ethnicity and children status differences. In addition, future researchers should use more complex measures of adult relationship health to better assess relationship outcomes. Finally, more exploratory research is needed to identify psychological processes that mediate the relationship between ACEs and adult relationship health outcomes in at-risk populations.
Chapter Summary

This chapter provided a summary and discussion of the study’s results. The study consisted of males and females, primarily Hispanic/Latino Other, Non-Hispanic White, Hispanic/Latino White, and Non-Hispanic Black/African American. The majority of individuals graduated from high school or college, and were full-time employed, unemployed, or part-time employed. Males reported higher annual incomes than females, and Group 3 (Non-Hispanic White) individuals had the highest average annual income.

Regarding ACEs, the current study’s results aligned with prior research confirming that economically disadvantaged, racially and ethnically diverse populations experience higher rates of childhood adversity. These increased rates of ACEs may be due in part to participants being from historically marginalized populations, earning low-incomes, and living below federal poverty thresholds. However, despite facing ACEs and socioeconomic stressors, average adult relationship health scores indicated that participants were relatively satisfied, non-distressed individuals (Hendrick, 1988). This finding contradicts prior research on the negative influence of economic disadvantage and minority status on adult relationship health outcomes. Further, participants appeared to use relationship self-regulation strategies and relationship effort behaviors to enhance their relationship.

These findings have implications for clinical practice and counselor education and supervision. First, mental health, marriage and family, and substance abuse counselors should assess for conventional and expanded ACEs when working with clients from historically marginalized populations. Clinicians should also conduct IPV risk assessments and when safe and appropriate to do so, encourage economically disadvantaged and relationally distressed individuals and couples to practice relationship self-regulation strategies and relationship effort
behaviors. Additionally, school counselors should be made aware of the increased rates and implications of family fragmentation, poverty, and childhood adversity among underprivileged, racial and ethnic minority children. School counselors need to conceptualize at risk children’s social, behavioral, and emotional issues from a socioeconomic perspective. Moreover, school counselors can offset negative outcomes for children and parents by facilitating psychoeducation and counseling services that focus on developing family support, establishing secure healthy attachments, using effective parenting practices, implementing stress management techniques, and establishing healthy relationships. School counselors can also link parents to resources in their community that offer money management services, job/career enhancement training, and long-term mental health services.

Next, counselor educators and supervisors need to inform counseling students about childhood adversity beyond childhood trauma and abuse. Counseling trainees should be knowledgeable about the high prevalence rate of ACEs among disadvantaged populations and assess for those experiences. Students also need to learn about contextual and socioeconomic stressors, socioeconomically disadvantaged frameworks, developmental traumatology models, and cycle of violence theories. They ought to apply these perspectives when conceptualizing their clients and formulating socioeconomically responsive treatment plans.

Moreover, evidence-based interventions should be used to address poor adult relationship health outcomes for at-risk populations. Interventions that link clients to community resources, and promote healthy relationships, intact families, and healthy parenting practices can help enhance adult relationship health. Finally, although limitations exist, this study contributes valuable information to the field of counseling and counselor education and supervision and
acknowledges the need for further research to understand the complexities of ACEs and its relative impact on historically marginalized populations.
The Relationship Between Childhood Adversity and Adult Relationship Health for Economically
Marginalized, Racially and Ethnically Diverse Individuals
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Abstract

Childhood adversity is prevalent and significantly influences an individual’s life. Adverse Childhood Experiences (ACEs) are linked to chronic physical and mental health issues, as well as maladaptive and abusive patterns of behavior in adult relationships such as unhealthy problem-solving strategies, poor ability at conflict resolution, and intimate partner violence (IPV). The current study explored the relationship between ACEs and adult relationship health outcomes. The study utilized a subset of archival pre-data from a large, federally funded research grant which offered individual and couple relationship education (RE) to economically marginalized, racially and ethnically diverse populations. Descriptive statistics, correlational analyses, and analysis of covariance (ANCOVA) answered the research questions. Results indicated the increased prevalence rate of ACEs among racially and ethnically diverse populations. Further, higher ACEs scores were associated with lower adult relationship health scores. Additionally, income was not a significant covariate. Study implications as well as effective and accessible preventive interventions for at-risk populations are discussed.

**Keywords:** Adverse Childhood Experiences, adult relationship health, diverse and economically marginalized individuals
The Relationship Between Childhood Adversity and Adult Relationship Health for Economically Marginalized, Racially and Ethnically Diverse Individuals

The Adverse Childhood Experiences Study (ACEs Study) was a seminal, large-scale, life-span study conducted from 1995 to 1997 by two physicians, Dr. Vincent Felitti and Dr. Robert Anda, and their colleagues (Felitti et al., 1998). These researchers defined ACEs as adversity faced before the age of 18. Adverse experiences included childhood physical, sexual, and emotional abuse, childhood neglect, and living with a household member who was mentally ill, incarcerated, victimized by maternal IPV, or a substance abuser. The ACEs study examined relationships between these experiences, adult health behaviors and outcomes, and the impact of underlying, chronic, multigenerational social and health effects of interrelated ACEs on overall wellbeing.

ACEs study participants were primarily White, middle-aged, educated, and middle-class individuals. Results revealed that ACEs were prevalent; over 50% of study participants indicated at least one ACE, 25% indicated two ACEs, about 6% indicated four or more ACEs, and approximately 66% of female participants indicated at least one ACE related to abuse, violence, or family conflict. ACEs were also associated with a variety of physical, social, and mental health problems (for e.g., obesity, diabetes, heart disease, lung cancer, autoimmune diseases, risky sexual behavior, poor romantic relationships, substance abuse, depression, suicide, work problems, and early death) (Anda, Butchart, Felitti, & Brown, 2010; Felitti & Anda, 2010; Felitti et al., 1998; Whitfield, Anda, Dube, & Felitti, 2003). Several studies then replicated and extended the original ACEs study to include disadvantaged populations.
ACEs Studies with Disadvantaged Populations

The Public Health Corporation (2013) replicated the ACEs study in several urban communities in Philadelphia. The Philadelphia Urban ACEs Study included racially and ethnically diverse individuals who graduated from high school and had varied income levels. This study assessed for additional potential ACEs, such as experiencing community violence and discrimination. These experiences were not included in the original ACEs study. Results indicated that approximately 67% of study participants reported at least one ACE, 37% reported four or more ACEs, and approximately 33% reported experiencing community violence and discrimination. Experiencing community violence and discrimination were also found to have negative health implications. Another study, funded through the National Institute of Child Health and Human Development (NICHD) and the National Science Foundation (NSF), examined ACEs and overall adult well-being in 1,202 low-income, racially diverse individuals from Chicago (Giovanelli et al., 2016). Findings revealed that approximately 66% of participants experienced one or more ACEs. Participants who experienced four or more ACEs held less skilled jobs, were significantly less likely to graduate high school, and were more likely to be depressed, to engage in high-risk health behaviors, to be arrested as a juvenile, and to acquire felony charges.

Additionally, Wade et al. (2014) used focus groups to study low-income urban young adults in Philadelphia. This study expanded the original understanding and categorization of ACEs. Focus group participants identified adversities they experienced throughout their childhood, including familial and peer relationship issues, community stressors, personal victimization, exposure to violence and criminal behavior, involvement with the child welfare and juvenile justice system, and growing up in a single-parent home. Participants also identified
discrimination, financial hardship, health issues, and problems at school (for e.g., bullying) as childhood adversities they experienced. Interestingly, these young adults did not perceive parental divorce or separation and parental mental illness as adverse experiences.

Next, Wade et al. (2016) explored the relationship between conventional and expanded ACEs and health outcomes in 1,784 racially and socially diverse adults from urban areas in Philadelphia. Conventional ACEs were negative experiences related to family-level dysfunction in the childhood home (i.e., the original ACEs items except having a divorced or separated parent). Having a divorced or separated parent was omitted in this study because Wade et al. (2014) discovered that the term “single parent home,” not divorce or separation, was used by participants to describe their fragmented family structure. Expanded ACEs were community-related negative experiences (i.e., residing in dangerous neighborhoods, experiencing discrimination and racism, being exposed to violence, being bullied, and being in the foster care system). Higher conventional ACEs scores (i.e., 4 or more) were significantly related to risky health behaviors and physical and mental health issues, and higher expanded ACEs scores (i.e., 3 or more) were significantly related to a history of substance abuse and sexually transmitted diseases. Further, socioeconomic status (SES) moderated the ACEs to health relationship, highlighting the multifaceted relationship between poverty and ACEs.

Slopen et al. (2016) examined income levels in relation to racial disparities in ACEs. Results indicated a pattern of exposure to childhood adversity influenced by race, ethnicity, and income for White, Black, and Hispanic children of US-born and immigrant parents. Black and Hispanic children reported more ACEs than White children; however, income differences were more predictive of ACEs exposure. Children who grew up in poor households were exposed to ACEs approximately three times more than children who grew up in higher-income households.
Specifically, poor Black and Hispanic children were 2.3 and 2.9 times more likely than higher-income Black and Hispanic children to report exposure to ACEs, and poor White children were 4.7 times more likely than higher-income White children to report exposure to ACEs. Also, after controlling for income, a disparity in ACEs exposure still existed among children of US-born parents; no disparities existed among children of immigrant parents. Race and ethnic disparities in ACEs exposure were most prevalent among children from families with high-income. As income increased, distinct racial and ethnic disparities in ACEs exposure also increased, specifically between Black and White children from high-income homes, and between Hispanic and White children from high-income homes.

Next, Font and Maguire-Jack (2016) studied the relationships between ACEs, social and economic factors in adulthood (i.e., level of education and income, being married, divorced, or separated, and insurance status), and adult health outcomes (i.e., depression, obesity, tobacco use, alcohol abuse, and self-reported poor health) in over 29,000 participants. Results showed that social and economic factors mediated the relationship between ACEs and adult health outcomes, especially when number of ACEs were high. Moreover, social and economic factors in adulthood primarily explained the relationship between three ACEs (i.e., being exposed to maternal IPV, having a divorced parent, and living with a household member who was previously incarcerated) and poor adult health outcomes. In contrast, although a significant relationship existed between other ACEs (i.e., physical, emotional, and sexual abuse) and adult health outcomes, social and economic factors did not explain much variance in this relationship.

Lastly, Nurius et al. (2012) highlighted that the repeated, co-occurring nature of socioeconomic disadvantage compounds the negative effects of ACEs on marginalized populations. These researchers used a social disadvantage lens to explore the relationship
between ACEs, socioemotional support, and adult mental health outcomes. Results indicated a sustained, negative impact of ACEs on adult mental health outcomes regardless of socioeconomic and demographic factors. However, social disadvantage (i.e., lack of socioemotional support and personal and social resources) significantly moderated the relationship between ACEs and adult mental health. Researchers further noted that the heightened effects of ACEs for marginalized populations may have been masked due to the positive and moderating effect of protective factors such socioemotional support and personal and social resources.

**Negative Outcomes Associated with ACEs**

The findings of the seminal ACEs study revealed a strong graded dose-response relationship between types of ACEs and multiple health and social problems across the lifespan (Felitti et al., 1998). A strong graded dose-response relationship means there is a positive correlation between exposure to ACEs and risks of experiencing physical, mental/emotional, and relational health problems. As exposure (or doses) to ACEs increases, the risk of negative outcomes also increases. For example, participants who indicated four or more ACEs were 12 times more likely to report a past suicide attempt, 10 times more likely to engage in intravenous drug use, 7 times more likely to use alcohol, and 1.4 times more likely to report severe obesity and diabetes compared to participants with a total ACEs score of zero. These participants were also more likely to engage in high-risk sexual behaviors (i.e., having numerous sexual partners, becoming pregnant as a teen, being raped, and contracting a sexually transmitted disease), report psychosocial problems (i.e., depression), demonstrate low productivity at work, and have an early death (Felitti et al., 1998).
ACEs are linked to several top leading causes of death and disability, including heart disease, lung cancer, diabetes, autoimmune diseases etc. (Anda, Butchart, Felitti, & Brown, 2010; Felitti & Anda, 2010; Felitti et al., 1998; Ward, Schiller, & Goodman, 2014). These and other chronic health issues cost the U.S. economy over $1 trillion a year in treatment costs and loss of productivity due to work absences (DeVol et al., 2007). ACEs also lead to impaired brain functioning and poor mental health. The Child Welfare Information Gateway (2015) reported that areas in the brain responsible for cognitive functioning (for e.g., short-term memory), higher order executive functioning, and emotion regulation are negatively impacted by ACEs. Mental health issues such as anxiety, post-traumatic stress disorder (PTSD), and depression are also related to ACEs (Felitti et al., 1998; Johnson, Riley, Granger, & Riis, 2013; Public Health Management Corporation, 2013; Shonkoff & Garner, 2012). Further, women who often witnessed maternal IPV as a child were significantly more likely to experience other ACEs, and subsequently reported depression and substance use in adulthood (Dube, Anda, Felitti, Edwards, & Williamson, 2002).

Additionally, childhood adversity such as physical or emotional abuse along with punitive parenting, lead children to develop deviant ways of processing their interpersonal experiences (Bradbury & Fincham, 1992; Dodge, Pettit, Bates, & Valente, 1995). Their maladaptive way of thinking oftentimes results in aggressive behavior and problematic romantic relationships later in life. Specifically, these children frequently over-attribute aggressive intentions to the behavior of others, and when this mentality persists into adulthood, problems are likely to arise in intimate relationships. For example, problems ensue when an individual views his or her partner’s negative behavior as intentional and thus worthy of blame and reprisal. Another example is when husbands, who are physically abusive, attribute negative intentions,
self-centeredness, and culpability to their wife’s behavior and are physically violent toward them as a result (Holtzworth-Monroe & Hutchinson, 1993).

**ACEs and IPV.** Children are born with an innate inclination to develop relationships and attachments with others (De Bellis, 2001). However, when children are abused, neglected, and/or traumatized they become suspicious and fearful of relationships, making healthy relationships difficult to establish in the future. Researchers link childhood adversity to increased risk of divorce (Font & Maguire-Jack, 2016), and increased likelihood of IPV perpetration and victimization (Brown, Perera, Masho, Mezuk, & Cohen, 2015; Cold et al., 2001; Mair, Cunradi, & Todd, 2012; Swopes, Simonet, Jaffe, Tett, & Davis, 2013; Whitfield et al., 2003).

In a landmark study using data collected from 8,629 participants from the original ACEs study, Whitfield et al. (2003) examined the relationship between men’s and women’s exposure to violent ACEs and adult relationship outcomes. Violent ACEs included experiencing physical and sexual abuse and witnessing maternal IPV. Results indicated a statistically significant positive graded relationship between the number of violent or abusive experiences in childhood and the increased probability of IPV victimization for women and IPV perpetration for men. Women who reported all three forms of violent ACEs were 3.5 times more likely to be IPV victims, and men were 3.8 times more likely to be IPV perpetrators compared to participants who indicated no exposure to violence in their childhood. Similarly, Cold et al. (2001) found that adult women who were physically and sexually abused as children were significantly more likely to be adult victims of IPV.

Additionally, Brown et al. (2015) studied sex differences and mediators of the relationship between ACEs and IPV. Potential mediators included depression, PTSD, and substance use disorder. Results indicated that depression did not mediate the relationship
between ACEs and IPV for either men or women. However, for men, the relationship between childhood sexual abuse and IPV was partially mediated by PTSD. PTSD was a significant underlying factor that helped partially explain how childhood sexual abuse influenced IPV in adulthood. Also, for men and women, the relationship between childhood physical and emotional abuse and IPV was fully mediated by substance abuse. Substance abuse strongly predicted and completely explained how childhood physical and emotional abuse influenced IPV in adulthood.

In another study, Swopes et al. (2013) explored the relationships between ACEs, symptoms of PTSD, emotional intelligence, and IPV among 108 male IPV offenders. Results showed that PTSD mediated (i.e., explained) the relationship between ACEs and IPV, particularly when emotional self-regulation and reasoning capacity were low.

Lastly, a study utilizing couple data examined the extent to which psychosocial issues such as anxiety, depression, impulsive behavior, and alcohol abuse mediated the relationship between ACEs and IPV (Mair et al., 2012). Findings revealed significant positive direct relationships between ACEs and anxiety, depression, and impulsive behavior for both male and female partners. Anxiety and impulsive behavior reported by males and depression reported by females positively correlated with male to female partner violence, and depression and alcohol abuse reported by males and depression reported by females positively correlated with female to male partner violence. Depression also explained the relationship between male ACEs and male to female partner violence, and anxiety and impulsive behavior explained the relationship between male ACEs and female to male partner violence. Moreover, depression explained the relationship between female ACEs and male to female partner violence and female to male partner violence.
These studies align with the cycle of violence theory which postulates that patterns of violence and/or maltreatment experienced during childhood will likely repeat during adulthood (Reckdenwald, Mancini, & Beauregard, 2013). Ongoing research addressing the link between ACEs and IPV, a significant public health issue in the United States (U.S.), is warranted (Brown et al., 2015). Identifiably, ACEs are associated with challenges to establishing healthy and supportive relationships in adulthood (McCarthy & Taylor, 1999; Felitti et al., 1998; Whitfield et al., 2003). Thus, further research is also needed to better understand the significant negative relationship that exists between ACEs and overall adult relationship health (Reyome, 2010), particularly within the context of economic disadvantage (Wheeler, 2017).

**Economic Marginalization, Adult Relationship Health, and ACES in Disadvantaged Populations**

Chronic economic hardship and subsequent contextual stressors negatively influence adult relationship health and functioning (Charles et al., 2006; Conger, Conger, & Martin, 1999; Hummer & Hamilton, 2010; Umberson et al., 2014). Charles and colleagues (2006) found that economic disadvantage negatively affected couple relationship quality and led to eventual dissolution of the couple relationship. Further, Conger et al. (1999) discovered that financial hardship contributed to increased emotional distress and marital problems among married couples. Also, Hummer and Hamilton (2010) studied economically disadvantaged, racial and ethnic minority, single-parent families and found that they were more at risk for family fragmentation, low marriage rates, limited access to resources, and poverty. These outcomes were particularly salient for Black women. Umberson et al. (2014) reported similar findings stating that economically disadvantaged Black women and mothers have the poorest relationship health outcomes.
Further, economic hardship coupled with racial and ethnic minority status create social disadvantages and chronic stressors such as facing discrimination and being stigmatized (DuBois, Burk-Braxton, Swenson, Tevendale, Hardesty, 2002; Krieger, 2001). Disadvantaged populations also experience increased rates of family fragmentation, lower levels of familial support, and decreased levels of adult relationship health (Conger et al., 1999; Hummer et al., 2010; Karney et al., 2005). And, with Blacks and Hispanics experiencing the highest poverty rates (DeNavas-Walt et al., 2015), it is safe to deduce that they also experience lower quality and less satisfactory adult relationships (Umberson et al., 2014, 2016).

In addition, very few studies to date investigated the extent to which ACEs influence adult relationship health outcomes (independent of IPV) in disadvantaged populations. One study examined the relationships between ACEs, social relationships, and physical health outcomes in racial and ethnic minority individuals (Umberson et al., 2014). These researchers used data from Americans’ Changing Lives, a nationally representative study including 3,477 participants. Researchers postulated that childhood adversity contributed to perpetual disadvantage in relationships across the lifespan, which led to negative health outcomes over time. Results indicated that conventional ACEs and expanded ACEs (for e.g., childhood economic hardship) were linked to decreased support and increased stress and strain in adult relationships. Further, Black participants experienced significantly lesser satisfying relationships (i.e., less support and more stress and strain) and poorer health outcomes compared to White participants. This finding was particularly salient for Black men who reported 28% more exposure to ACEs than White men. In fact, the negative influence of ACEs on adult relationship quality was threefold for Black men. Black men’s increased exposure to childhood adversity strongly explained poor physical
and relationship health outcomes over time. On the other hand, women’s stress in adulthood was more impactful than ACEs in explaining the relationship between race and poor physical health.

Then, Umberson et al. (2016) conducted a qualitative study to investigate racial disparities in the relationship between ACEs and men’s relationship health over time. Researchers conducted thorough interviews with 15 Black men and 15 White men and examined psychosocial and behavioral coping mechanisms developed in childhood in response to ACEs. Umberson and colleagues also explored the extent to which these coping mechanisms explained the relationship between ACEs and strained relationships in adulthood with partners and children. Results indicated that Black men experienced more intense and chronic ACEs compared to White men. ACEs also negatively influenced psychosocial coping responses in childhood (e.g., feeling a decreased sense of mastery), which potentially led to unhealthy coping responses to stress and adversity in adulthood (e.g. substance abuse). Consequently, unhealthy coping in adulthood negatively impacted adult relationship quality and satisfaction. Finally, this study highlighted that psychosocial and behavioral responses serve as mechanisms through which ACEs exert their influence on adult relationship health outcomes (Umberson et al., 2016).

More recently, Wheeler (2017) investigated the relationship between ACEs, couple relationship quality, and physical health outcomes in 503 economically disadvantaged, racial and ethnic minority heterosexual couples who participated in couple relationship education (RE). Approximately 77% of the couples identified with a racial or ethnic minority status. Wheeler defined couple relationship quality using three components, behavioral self-regulation (i.e., relationship self-regulation strategies and relationship effort) and relationship satisfaction. Results indicated a significant, yet small, inverse relationship between ACEs and couple relationship quality (i.e., higher total ACEs scores correlated with lower couple relationship
quality). Further, couple relationship quality explained approximately 82% of the variance in health outcomes for men and about 57% of the variance in health outcomes for women. This study’s overall findings indicated that a high total ACEs score led to low couple relationship quality, and low couple relationship quality led to poor physical health outcomes.

Overall, economically marginalized, racial and ethnic minorities face dire consequences as a result of experiencing childhood adversity. The abovementioned socioeconomic disparities highlight issues of national and societal importance that warrant further investigation. The current study addresses some of these issues and includes the following research questions (a) What are the relationships among total ACEs scores, adult relationship health scores, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals? (b) Controlling for average yearly income, is there a significant difference in adult relationship health scores among individuals who indicate a total ACEs score of three or less and individuals who indicate a total ACEs score of four or more?

**Method**

I used a subset of archival pre-data collected during Project T.O.G.E.T.H.E.R. (To Offer Great Education That Harvests Enduring Relationships). Project T.O.G.E.T.H.E.R. (often referred to as “the Project”) was a large, federally funded research grant through the U.S. Department of Health and Human Services (HHS), Administration for Children and Families (ACF), Office of Family Assistance (OFA) (90-FM-0039-01-00). Project T.O.G.E.T.H.E.R. was conducted at the University of Central Florida’s Marriage and Family Research Institute (UCF MFRI) as well as other locations in the Central Florida region. Project staff utilized passive and active strategies to recruit eligible research participants (Carlson et al., 2014) from local
community agencies (for e.g., health departments) that offered services to economically
disadvantaged individuals, couples, and families.

Project T.O.G.E.T.H.E.R. offered individual and couple relationship education (RE), employment skills training (e.g. workforce development), case management, and brief individual and couples counseling to eligible participants. Project staff enrolled eligible participants in a 12-hour individual RE intervention, PREP (Prevention and Relationship Enhancement Program) Within My Reach (WMR). Eligible participants identified as single, or in a relationship yet attending the intervention without a partner. Project staff also enrolled eligible participants in a 12 to 15-hour couple RE intervention, PREP Within Our Reach (WOR) or Within Our Reach Plus (WOR Plus). Eligible participants identified as being in a relationship and attending the intervention with their partner. All enrolled participants received Walmart gift cards as incentives for program participation and completion.

Research Design

The current study uses a non-experimental ex-post facto (i.e., causal-comparative) research design (Creswell, 2014; Fraenkel & Wallen, 2009; Heppner, Wampold, & Kivlighan, 2008). I utilized an associational research design to explore the relationships between ACEs (i.e., the pre-existing conditions not manipulated by the researcher), approximated average individual yearly income, and adult relationship health. The current study utilized a convenience sample (Fraenkel et al., 2009) from Project T.O.G.E.T.H.E.R. Participants were primarily economically disadvantaged, racially and ethnically diverse individuals, at least 18 years old, and in a heterosexual couple relationship (i.e., in a committed relationship, engaged, or married). These individuals also participated in a couple RE intervention. Data were collected during the fourth and final year of the Project from October 1, 2014 to September 29, 2015.
Analysis

Analysis includes preliminary analyses to determine if the data meet assumptions for parametric tests for each statistical analysis and include descriptive statistics to describe the sample (i.e., participants’ gender, age, race and ethnicity, educational attainment, employment status, approximated average yearly income, children and relationship status, and length of relationship). Additional analyses include correlation analyses to understand the strength and direction of the relationships between study variables, and analysis of covariance (ANCOVA) for determining statistically significant between-group mean differences after controlling for the effect of a covariate (Hair, Black, Babin, Anderson, & Tatham, 2006; Tabachnick et al., 2014). There were no major violations of assumptions; thus, the data met requirements for parametric testing.

Participants

Participants included individuals and couples who indicated no active/current domestic violence (for couples), no current and untreated substance abuse issues, and no active and untreated severe mental health issues. The Project identified inclusion criteria based on the scope of the Project, clinical expertise of Project staff, and best practices for facilitating RE. A very small number of individuals and couples were non-eligible to participate (i.e., approximately five cases over the course of the Project). Project staff provided non-eligible participants with resources such as local domestic violence shelters and crisis hotline numbers, substance abuse treatment facilities, community counseling centers, and other pertinent community resources.

Descriptive results indicated a total sample size of 366 individuals including 164 males (44.8%) and 202 females (55.2%). The average age was 35.16 years ($SD = 11.47$ years), and ages ranged from 18 to 77. The majority of participants attained a high school diploma/GED ($n = 116,$
31.7%), followed by a bachelor’s degree (n = 80, 21.9%). The most frequently reported employment status was full time (n = 157, 42.9%), followed by unemployed (n = 118, 32.2%), and part-time (n = 65, 17.8%). The length of couple relationship ranged from one month to 53 years (M = 9.08 years, SD = 9.5 years, Mdn = 6 years), and most participants (n = 202, 55.5%) described their relationship as “good,” followed by “fair” (n = 125, 34.3%), and 37 participants described their relationship as “poor” (10.2%).

The sample also included ethnically and racially diverse individuals (i.e., 182 Hispanic or Latino individuals [49.7%] and 184 Non-Hispanic individuals [50.3%]). Racial groups included American Indian/Alaska Native (n = 4, 1.1%), Asian (n = 7, 1.9%), Black/African American (n = 72, 19.7%), Native Hawaiian/Other Pacific Islander (n = 3, .8%), White (n = 163, 44.5%), and Other (n = 117, 32%). Participants who indicated “Other” provided descriptions such as Latino/a, Hispanic, Multiracial, White, and countries of origin (i.e., Puerto Rican, Dominican, and Mexican). Descriptive results for participants’ ethnicity and race combined included Hispanic or Latino American Indian/Alaska Native (n = 3, .8%), Non-Hispanic American Indian/Alaska Native (n = 1, .3%), Non-Hispanic Asian (n = 7, 1.9%), Hispanic or Latino Black/African American (n = 5, 1.4%), Non-Hispanic Black/African American (n = 67, 18.3%), Hispanic or Latino Native Hawaiian/Other Pacific Islander (n = 2, .5%), Non-Hispanic Native Hawaiian/Other Pacific Islander (n = 1, .3%), Hispanic or Latino White (n = 72, 19.7%), Non-Hispanic White (n = 91, 24.9%), Hispanic or Latino Other (n = 100, 27.3%), and Non-Hispanic Other (n = 17, 4.6%) (see Table 1 and Table 2).
Table 1 *Sample Descriptive Results*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity and Race</strong></td>
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<td></td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino Other</td>
<td>100</td>
<td>27.3</td>
</tr>
<tr>
<td>Hispanic or Latino Black/African American</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>Hispanic or Latino American Indian/Alaska Native</td>
<td>3</td>
<td>.8</td>
</tr>
<tr>
<td>Hispanic or Latino Native Hawaiian/Pacific Islander</td>
<td>2</td>
<td>.5</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>30.1</td>
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<tr>
<td>Group 2</td>
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</tr>
<tr>
<td>Hispanic or Latino White</td>
<td>72</td>
<td>19.7</td>
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<tr>
<td>Group 3</td>
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<tr>
<td>Non-Hispanic White</td>
<td>91</td>
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<td>Group 4</td>
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<td>18.3</td>
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<td>Group 5</td>
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<td>17</td>
<td>4.6</td>
</tr>
<tr>
<td>Non-Hispanic Asian</td>
<td>7</td>
<td>1.9</td>
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<tr>
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<td>.3</td>
</tr>
<tr>
<td>Non-Hispanic Native Hawaiian/Pacific Islander</td>
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<td>.3</td>
</tr>
<tr>
<td>Total</td>
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<td>7.1</td>
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<tr>
<td><strong>Level of Education</strong></td>
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<td>High school diploma/GED</td>
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<tr>
<td>Bachelor’s Degree</td>
<td>80</td>
<td>21.9</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>63</td>
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<tr>
<td>Vocational/Technical certification</td>
<td>51</td>
<td>13.9</td>
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<tr>
<td>No Degree or Diploma</td>
<td>25</td>
<td>6.8</td>
</tr>
<tr>
<td>Master’s/Advanced Degree</td>
<td>23</td>
<td>6.3</td>
</tr>
<tr>
<td>Other</td>
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<td>2.2</td>
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<tr>
<td><strong>Employment Status</strong></td>
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<tr>
<td>Full-time</td>
<td>157</td>
<td>42.9</td>
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<tr>
<td>Unemployed</td>
<td>118</td>
<td>32.2</td>
</tr>
<tr>
<td>Part-time</td>
<td>65</td>
<td>17.8</td>
</tr>
<tr>
<td>Disabled</td>
<td>13</td>
<td>3.6</td>
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<tr>
<td>Retired</td>
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<td>2.7</td>
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<tr>
<td>Student</td>
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<td>.8</td>
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<tr>
<td><strong>Children Status</strong></td>
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<tr>
<td>Have at least one child under the age of 18 years old</td>
<td>257</td>
<td>70.2</td>
</tr>
<tr>
<td>Have no children/Have at least one child over the age of 18 years old</td>
<td>109</td>
<td>29.8</td>
</tr>
<tr>
<td>Married</td>
<td>225</td>
<td>61.5</td>
</tr>
</tbody>
</table>
Approximated average individual yearly income ranged from $0.00 to $60,000.00. The mean was $13,968.19 ($SD = $13,627.73, $Mdn = $12,000.00), the mode was $0.00 ($n = 111, 30.4\%)$, and one participant had the maximum approximated average individual yearly income of $60,000.00. Most participants were either married or in a committed relationship ($n = 338, 92.3\%$), had children under the age of 18 years ($n = 257, 70.2\%$), and the total number of children ranged from zero to eight ($M = 1.77$). Data were collected from 2014 to 2015, and the poverty threshold (i.e., a measure of federal poverty in the U.S.) in 2015 for a family of four consisting of two adults and two children under the age of 18 years is $24,036.00 (U.S. Census Bureau, 2018). Approximately 81% of participants ($n = 298$) had approximated average individual yearly incomes below this federal poverty threshold. Each participant identified being in a relationship and had a partner who may or may not have contributed income to the household; however, participants’ partners’ data were not used in the current study. Yet, a recent study using Project T.O.G.E.T.H.E.R. couple data (i.e., including both partners’ data) determined that approximately 75.5% of participants had incomes below the 2015 federal poverty guidelines for a household/family size of four (Wheeler, 2017).

Additionally, approximately 19% of participants indicated zero ACEs, 14% indicated one ACE, 12% indicated two ACEs, and 11% indicated three ACEs (i.e., 56% of participants indicated an ACEs score of three or below), and 44% indicated four or more ACEs. The average total ACEs score was $3.20 (SD = 2.56) and adult relationship health score ($M = 3.70, SD = .82$) (see Table 2).
<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>5% Trimmed Mean</th>
<th>SD</th>
<th>Skew</th>
<th>Kurtosis</th>
<th>Min</th>
<th>Max</th>
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</thead>
<tbody>
<tr>
<td>Approx. average individual yearly income^</td>
<td>$13,968.19</td>
<td>$12,842.21</td>
<td>$13,627.73</td>
<td>.856</td>
<td>.197</td>
<td>$0.00</td>
<td>$60,000.00</td>
</tr>
<tr>
<td>Total ACEs score</td>
<td>3.20</td>
<td>3.09</td>
<td>2.56</td>
<td>.428</td>
<td>-.822</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Adult relationship health score</td>
<td>3.70</td>
<td>3.72</td>
<td>.82</td>
<td>-.379</td>
<td>-.459</td>
<td>1.29</td>
<td>5</td>
</tr>
</tbody>
</table>

N = 366; ^ one missing data

Measures

Participants completed several self-report instruments including the Adverse Childhood Experiences (ACEs) Survey, Relationship Assessment Scale (RAS), and Adult History Demographic Intake Form.

Adverse Childhood Experiences (ACEs) Survey. The independent variable, total ACEs score, is measured using the ACEs survey. Felitti and colleagues (1998) developed a 10-item checklist of ACEs occurring before the age of 18, with each item falling into one of three domains: (1) child abuse (i.e., physical, emotional, and sexual), (2) child neglect (i.e., physical and emotional), and (3) dysfunction in the childhood home (i.e., having a parent or household member who is divorced, incarcerated, mentally ill, a substance abuser, and/or victimized by maternal IPV). Participants respond with either a “yes” or “no” to each item, and a total ACEs score is calculated by summing all “yes” responses. Total ACEs scores range from zero to 10,
with zero indicating no childhood adversity and higher ACEs total scores indicating more exposure to childhood adversity.

Regarding the psychometric properties of the instrument, Dube and colleagues used Cohen’s kappa statistics to evaluate the test-retest reliability of ex-post facto ACEs disclosures from 658 participants from the original ACEs study at two-week and 20-month intervals (Dube, Williamson, Thompson, Felitti, & Anda, 2004). Cohen’s kappa statistics is a statistical test of reliability that adjusts for test-retest agreement occurring by chance (Fleiss, 1981). Kappa coefficients range from -1 to +1, with kappa coefficients ≥ .75 indicating excellent reliability, < .40 indicating poor reliability, and between .40 and .75 indicating good reliability. Kappa coefficients indicated good to excellent reliability for individual responses to ACEs survey items as well as total ACEs scores. Kappa coefficients included .66, .55, and .69 for emotional abuse, physical abuse, and sexual abuse respectively. Further, kappa coefficients were .75 and .77 for residing with a household member who abused substances and witnessing maternal IPV respectively. The kappa coefficient for total ACEs score was .64. Researchers also reported overall kappa coefficients ranging from .41 to .86 for the three categorical subscales (i.e., child abuse, child neglect, and household dysfunction), demonstrating good to excellent reliability. Overall, this study revealed that ex-post facto disclosures of ACEs are consistent over time.

Additionally, exploratory factor analysis (EFA) of the ACEs survey confirmed its three-factor structure, appropriateness of a cumulative value which represents overall exposure to ACEs, and high correlation among the three domains (i.e., Cronbach’s alpha of .59 for emotional, physical, and sexual abuse, and .80 for emotional and physical abuse and household dysfunction). Further, factor loadings for the household dysfunction domain showed that parental divorce had the least factor loading of .58, and substance abuse by a household or family
member had the highest factor loading of .79 (Ford et al., 2014). Also, in a recent study using Project T.O.G.E.T.H.E.R data, the ACEs survey showed good internal consistency with a Cronbach’s alpha of .76 (Wheeler, 2017) (see Appendix B).

**Relationship Assessment Scale (RAS).** The dependent variable, adult relationship health score (i.e., relationship satisfaction score), is measured using the RAS. The RAS is a seven-item measure of relationship satisfaction or dissatisfaction developed by Hendrick (1988). This instrument was developed for partners in a relationship and/or marriage, and the items assess the value and meaning an individual places on the relationship. For example, items assess general satisfaction level, overall problems in the relationship, extent to which one’s needs are met by one’s partner, extent to which one’s expectations are being met, how well one’s relationship compares to others, regrets one has about the relationship, and love one feels for partner. Participants respond to items on a Likert-scale ranging from one to five, indicating the degree to which they agree with each statement. The RAS uses several Likert-scale response formats, including “Unsatisfied to Extremely Satisfied,” “Poor to Excellent,” “Never to Very Often,” “Hardly at All to Completely,” “Not Much to Very Much,” and “Very Few to Very Many.”

A RAS score is calculated by summing responses to all seven items then taking the average. Two items (i.e., 4 and 7) are reversed scored. Scores range from 1 to 5 with higher scores indicating higher levels of relationship satisfaction. A RAS score above 3.5 indicates relationship satisfaction and a non-distressed partner; however, there are slight gender differences regarding relationship dissatisfaction. A RAS score below 3.5 for males and a RAS score below 3 to 3.5 for females indicate relationship distress and potentially considerable relationship dissatisfaction. RAS scores are reliable (α = .86) and the items are moderately correlated (.49). The RAS is also highly correlated with the Dyadic Adjustment Scale (r = .8) and

**Adult History Demographic Intake Form.** Moderating variables include gender, race and ethnicity, and children status, and the covariate is average individual income. These data were collected using the Adult History Demographic Intake Form, a 65-item form developed by the Project research team. This form also collected data on participant’s age, level of education, relationship status, case management needs, and potential contextual stressors (see Appendix A).

**Results**

**Research Question One**

What are the relationships among total ACEs scores, adult relationship health scores, and approximated average individual yearly income in an economically marginalized, racially and ethnically diverse sample of individuals?

H1: There will be statistically significant relationships among total ACEs scores, adult relationship health scores, and approximated average individual yearly income.

Pearson’s correlation analyses indicate that there is a statistically significant, yet small, negative relationship between total ACEs scores and adult relationship health scores \( r = -.22, p < .001 \), and between total ACEs score and approximated average individual yearly income \( r = -.13, p < .05 \). Further, there is no relationship between approximated average individual yearly income and adult relationship health scores \( r = -.06 \) (see Table 3).
Table 3 Pearson Correlations Between Independent, Dependent, and Covariate Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total ACEs scores</th>
<th>Adult relationship health scores</th>
<th>Average individual yearly income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ACEs scores</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Adult relationship health scores</td>
<td>-22***</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Average individual yearly income</td>
<td>-13*</td>
<td>-06</td>
<td>1</td>
</tr>
</tbody>
</table>

N = 366; ^ one missing data; *p < .05, two-tailed; ***p < .001, two-tailed.

Research Question Two

Controlling for average yearly income, is there a significant difference in adult relationship health scores among individuals who indicate an ACEs score of three or less and individuals who indicate an ACEs score of four or more?

H1: Individuals who indicate a total ACEs score of three or less will have significantly higher scores on adult relationship health compared to individuals who indicate a total ACEs score of four or more, who will have significantly lower scores on adult relationship health.

I conducted a between-groups ANCOVA to explore differences in adult relationship health scores, for individuals with a total ACEs score of three or less and individuals with a total ACEs score of four or more. I controlled for approximated average individual yearly income. Univariate tests of between-subjects effects using a Bonferroni adjustment (i.e., a more conservative α of .017) which decreases the probability of a Type 1 error (i.e., finding significance when there is none), indicate that after controlling for income, there is a statistically significant mean difference between individuals with a total ACEs score of three or less and
individuals with a total ACEs score of four or more in their adult relationship health scores, $F$ (1, 361) = 17.76, $p = .000$, $\eta^2_p = .047$. This shows a small to medium effect size (Cohen, 1988), and reveals that about 5% of the variance in adult relationship health is explained by total ACEs scores. Also, when controlling for total ACEs score, there was not a statistically significant relationship between income and adult relationship health, (i.e., $p$ value > .05, and $\eta^2_p$ value is very small). So, income was not significant and did not explain much variance in adult relationship health scores (Pallant, 2013). Finally, a comparison of group means using estimated marginal means (i.e., adjusted means with the effect of income removed), showed that individuals with a total ACEs score of three or less had higher mean scores on adult relationship health ($M = 3.86$, $SE = .06$) than individuals with a total ACEs score of four or more ($M = 3.50$, $SE = .06$) (see Table 4).

Table 4 *Group Means*

<table>
<thead>
<tr>
<th>Independent Groups</th>
<th>Dependent Variables</th>
<th>$M$</th>
<th>$SD$</th>
<th>Adjusted Mean</th>
<th>$SE$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ACEs score of three or less$^\wedge$ ($n = 205$)</td>
<td>Adult relationship health scores</td>
<td>3.85</td>
<td>.79</td>
<td>3.86***</td>
<td>.06</td>
</tr>
<tr>
<td>Total ACEs score of four or more$^\wedge$ ($n = 159$)</td>
<td>Adult relationship health scores</td>
<td>3.51</td>
<td>.80</td>
<td>3.50***</td>
<td>.06</td>
</tr>
</tbody>
</table>

$N = 364$; $^\wedge$ one missing data; ***$p < .001$; approximated average individual yearly income evaluated at $13,980.20$.

**Discussion**

Participants in the seminal ACEs study were middle class and above and insured, and only 6% reported an ACEs score of four or more (Felitti et al., 1998). In another ACEs study, participants were primarily Non-Hispanic White (81%), married or widowed (62%), with at least
a high school education, and 17% reported an ACEs score of four or more (Font & Maguire-Jack, 2016). In the current study, participants were racially and ethnically diverse, had various education levels, and reported significantly low incomes. Also, although 43% of participants were employed full-time and 18% employed part-time, 81% lived below the federal poverty threshold. Thus, it is safe to deduce that these participants faced dire socioeconomic challenges and had limited access to resources.

Furthermore, the current study reported extremely high rates of ACEs. This finding aligns with prior research confirming increased prevalence of childhood adversity among economically disadvantaged, racially and ethnically diverse populations. About 56% of participants reported an ACEs score of three or below, and 44% reported an ACEs score of four or more. The increased prevalence rate of ACEs may be due in part to participants’ historically marginalized status, low-income status, and poverty level. Additionally, almost half of the participants were potentially at risk for suboptimal physical, mental/emotional, and relational health. Other possible risks include suicidality, drug and alcohol use, low education attainment, low-paying jobs, and an early death. An ACEs score of four or more is also associated with a risk of divorce; however, on average, participants reported feeling satisfied in their romantic relationships and had intact families. So, despite having a historically disadvantaged status and facing chronic socioeconomic challenges, these participants’ sense of fulfillment and satisfaction with their partner seemed to offset the negative impact of ACEs on adult relationship health outcomes.

**Implications**

The current study’s findings have multiple implications for clinical practice and counselor education and supervision.
Clinical Implications

Childhood adversity is linked to poor mental and relational health outcomes in adulthood including anxiety, depression, PTSD, and substance use (Dube et al., 2002; Felitti et al., 1998; Johnson et al., 2013; Public Health Management Corporation, 2013; Shonkoff et al., 2012). ACEs are also associated with poor emotion regulation (Child Welfare Information Gateway, 2015) and risk of IPV perpetration and victimization. Therefore, mental health, marriage and family, and substance abuse counselors should assess for ACEs when working with historically marginalized clients with mental and/or relational health issues. Mental health, marriage and family, and substance abuse clinicians should also complete a risk assessment for IPV victimization when working with women who experienced violent ACEs, and a risk assessment for IPV perpetration when working with men who had similar adverse experiences. Additionally, clinicians should highlight the importance of emotional support and healthy conflict resolution strategies when working with economically disadvantaged individuals and couples who are experiencing relationship distress.

Regarding school counseling, school counselors who work with underprivileged, racial and ethnic minority children should be aware of the high rate of family fragmentation, poverty, and ACEs among racial and ethnic minority children. School counselors should be knowledgeable about the implications of these circumstances and subsequently conceptualize children’s social, behavioral, and psychological problems from a disadvantaged socioeconomic lens. School counselors can then intervene to offset suboptimal outcomes for both children and parents. Interventions can include psychoeducation and counseling services for children and parents that focus on establishing familial support, building secure attachments, developing effective parenting practices, practicing stress management techniques, and creating healthy,
stable relationships. School counselors can also link parents to community resources, such as agencies that provide money management services, job/career enhancement training, and long-term mental health services.

**Counselor Education and Supervision**

Counseling trainees need to be aware of childhood adversity beyond childhood trauma and abuse. Adversities such as growing up in a single-parent home, living in an impoverished, crime-ridden, violent neighborhood, and being exposed to criminal and violent acts, and being in the child welfare and juvenile justice system should be assessed for and considered when conceptualizing a client and formulating a treatment plan for services. Trainees should be cognizant of the heightened prevalence of these types of experiences in at-risk populations. Counselor educators also need to teach students about socioeconomically disadvantaged frameworks and cycle of violence theories, as well as contextual socioeconomic issues that surround historically marginalized populations. Students ought to be able to apply these perspectives when conceptualizing diverse, generationally disadvantaged clients.

**Evidenced-Based Interventions**

Accessible evidence-based preventive interventions are necessary to address the multiple chronic effects of ACEs (Giovanelli et al., 2016) on adult relationship health outcomes in disadvantaged populations. ACEs are linked to heightened risk of IPV in adulthood (Mair et al., 2012; Whitfield et al., 2003), and overall poor-quality adult relationships (Umberson et al., 2014, 2016). However, when adults who experienced childhood adversity and trauma have access to resources such as community support, and supportive and emotionally safe relationships the long-lasting impacts of childhood adversity and trauma are reduced (Child Welfare Information Gateway, n.d.; Madsen & Abell, 2010).
Further, economically marginalized, disadvantaged populations face childhood adversity at increased rates, and experience poorer adult relationship health outcomes (Umberson et al., 2014, 2016; Wheeler, 2017). Still, relationship health outcomes for economically marginalized, disadvantaged adults can improve once they have access to employment assistance, fatherhood and parenting programming, couples counseling, financial security resources, and relationship skills training (Charles et al., 2006; Conger et al., 1999). These resources and interventions are helpful in effectively navigating stressors related to poverty and family and relationship fragmentation (Charles et al., 2006; Conger et al., 2011; Karney et al., 2005).

Relationship skills training such as individual and couple relationship education (RE) are preventive (Hawkins et al., 2008; Stanley et al., 1998), and acknowledge the deleterious impact of financial hardship on relationship health and aim to improve relationship health outcomes for disadvantaged individuals and couples (Karney et al., 2005). RE is primarily offered in groups of individuals or couples, and they learn about effective communication, healthy problem-solving, effective conflict resolution, and adaptive ways to discuss deep-rooted, core issues such as commitment, relationship expectations, forgiveness, and finances (Hawkins et al., 2008; Stanley et al., 1998). Hawkins and colleagues discovered that individual and couple RE helps increase relationship quality and satisfaction and decrease levels of individual and relationship distress. RE programs also show particularly positive outcomes for low-income, racially and ethnically diverse populations (Barden et al., 2015; Carlson, Barden, Daire, & Swartz, 2014; Carlson et al., 2014).

**Limitations**

Compromises are often made when designing and implementing a research study (Heppner et al., 2008). No study is without threats to internal and external validity; however, a
study is still considered scientifically useful once threats to validity are not severe enough to disqualify its findings, which are accepted tentatively. The current study included uncontrolled variables not manipulated by the researcher (Heppner et al., 2008, Pallant, 2013). Also, only participants who met the inclusion criteria for Project T.O.G.E.T.H.E.R. could participate in the study. Participants meeting inclusion criteria may possess specific qualities or characteristics that contribute to certain outcomes (Creswell, 2014). Further, data collection procedures and research settings may have impacted participants’ responses. For instance, participants completed assessments with their partner present, oftentimes sitting right beside them. The physical proximity of one’s partner and his or her ability to potentially see the other’s responses may compromise accuracy of answers (Creswell, 2014). In addition, recruitment staff and recruitment strategies could have biased the sample, and people who were invited to participate in the research could have chosen not to do so. On the other hand, the sample was large, representative of the target population, and came from six counties across Central Florida.

Additionally, retrospective reporting of ACEs (Brown, Schefflin, & Whitfield, 1999) and concurrent data collection on adult relationship health pose several limitations (McCarthy et al., 1999). For example, participants were required to remember specific ACEs which could be emotionally challenging and lead to underreporting (Femina, Yeager, & Lewis, 1990; Williams, 1995). Underreporting often results in accepting null hypotheses (Brown et al., 1999; Whitfield, Silberg, & Fink, 2001), and thus underestimating the relationship between ACEs and adult relationship health outcomes (Rothman, 1986).

Other limitations include the potential violation of independence of observations, and the assumption that ordinal level ratings (i.e., Likert scales) used in the Relationship Assessment Scale (RAS) approximate interval level scaling. Also, there was no control for socially desirable
responding bias on self-report measures (Pallant, 2013), and results are only generalizable to the population randomly sampled (Tabachnick et al., 2014).

**Recommendations for Future Research**

High poverty rates and increased prevalence of family fragmentation among disadvantaged populations are significant issues in the U.S. (Hummer et al., 2010). The current study examined the influence of conventional ACEs on adult relationship health outcomes among economically marginalized, low-income, racially and ethnically diverse individuals. Future research ought to investigate the impact of both conventional and expanded ACEs on adult relationship health outcomes. Expanded ACEs include exposure to community violence, insufficient social support, living in extreme poverty, experiencing discrimination, having historical trauma, and growing up in an unstimulating environment (De Bellis, 2001, 2005; Herman, 1992; Substance Abuse and Mental Health Services Administration, n.d.; 2016). Additional expanded ACEs include growing up in a single-parent home, being in the child welfare system, and being involved in the juvenile justice system (Wade et al., 2014). Also, considering the recent events taking place at the U.S.-Mexico border, the adverse and traumatic experience of being separated from a loved one (Herman, 1992; Substance Abuse and Mental Health Services Administration, n.d.; 2016) needs the immediate attention of the counseling community.

Future research should also investigate types of ACEs as opposed to total ACEs score (Font et al., 2016). Determining the relative impact of each type of ACE as opposed to considering each ACE equally, can augment the understanding of ACEs types as well as their specific implications. For example, all ACEs are linked to poor mental health outcomes;
however, abuse-related ACEs are uniquely associated with suicidality (Dube et al., 2001, 2003) and IPV outcomes (Whitfield et al., 2003).

Future research should also replicate Whitfield et al., and investigate gender differences, ACEs types, and risk of IPV victimization and perpetration in disadvantaged populations. Also, studies show that Black mothers (Hummer et al., 2010) and Black men (Umberson et al., 2014, 2016) have the poorest relationship outcomes. So, researchers should further examine race and ethnicity and children status differences. In addition, future researchers should use more complex measures of adult relationship health to better assess relationship outcomes. Finally, more exploratory research is needed to identify psychological processes that mediate the relationship between ACEs and adult relationship health outcomes in at-risk populations.
References


http://dx.doi.org/10.1080/01926180301125


http://dx.doi.org/10.1111/jomf.12077


https://doi.org/10.1177/1077801204271476


### APPENDICES

Appendix A: Adult History Demographic Intake Form

#### Adult History Form Part A

Today’s Date: ____________

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<td>1. Your name:</td>
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<td>2. Gender</td>
<td>□ Male □ Female</td>
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<td>3. Your Date of Birth (MM/DD/YYYY):</td>
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<td>4. Age:</td>
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<td>5. Home street address:</td>
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<td>City, State &amp; Zip</td>
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<td>6. Phone Numbers:</td>
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<td></td>
<td>Home: (__<strong>)</strong>__<strong>-</strong>____</td>
<td>□ Yes □ No</td>
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<td></td>
<td>Work: (__<strong>)</strong>__<strong>-</strong>____</td>
<td>□ Yes □ No</td>
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<td>Cell/other: (__<strong>)</strong>__<strong>-</strong>____</td>
<td>□ Yes □ No</td>
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<tr>
<td>7. Preferred contact number:</td>
<td>□ Home □ Work □ Cell/Other</td>
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<td>8. Email Address:</td>
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<tr>
<td>9. Person and number to call in case of emergency:</td>
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#### Demographic Information - About you

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<tr>
<td>10. Ethnicity:</td>
<td>□ Hispanic □ Non-Hispanic</td>
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<td>11. Race:</td>
<td>□ American Indian/Alaskan Native □ Asian □ Black/African American □ Native Hawaiian/Other Pacific Islander □ White □ Other:_________</td>
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<td><strong>Educational Attainment:</strong></td>
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<td>12. Highest Education Completed:</td>
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<tr>
<td>□ No degree or diploma earned</td>
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<tr>
<td>□ High school diploma/GED</td>
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<tr>
<td>□ Vocational/Technical Certification</td>
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<tr>
<td>□ Associate’s Degree</td>
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<tr>
<td>□ Bachelor’s Degree</td>
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<tr>
<td>□ Master’s degree/Advance degree</td>
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<tr>
<td>□ Other: ___________________________</td>
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<tr>
<th>13. Years of Education completed (e.g. 12th grade would be ‘12’, A.A. Degree would be ‘14’)?</th>
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</thead>
<tbody>
<tr>
<td>________ years</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Demographic Information – About Your Relationship</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Marital Status:</td>
</tr>
<tr>
<td>□ Single, Never married</td>
</tr>
<tr>
<td>□ Committed relationship (not married)</td>
</tr>
<tr>
<td>□ Engaged to be □ Married ______ years</td>
</tr>
<tr>
<td>□ Separated □ Divorced □ Widowed</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>15. How many times were you married before your current relationship?</th>
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<td>________</td>
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</table>

<table>
<thead>
<tr>
<th><strong>If not currently in a relationship</strong></th>
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</thead>
<tbody>
<tr>
<td>check here and proceed to question 21: □</td>
</tr>
<tr>
<td>N/A</td>
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<table>
<thead>
<tr>
<th><strong>If you are currently in a relationship, please answer the following questions:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>16. How long have you been in your current relationship?</td>
</tr>
<tr>
<td>___ Years, ___ Months</td>
</tr>
</tbody>
</table>

| 17. What is your current living arrangement: |
| □ Living Together |
| □ Living Apart |

| 18. How would you describe your current relationship? |
| □ Good □ Fair □ Poor |

<table>
<thead>
<tr>
<th>19. What activities do you and your partner enjoy together?</th>
</tr>
</thead>
<tbody>
<tr>
<td>___________________________________________________________</td>
</tr>
<tr>
<td>___________________________________________________________</td>
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<tr>
<td>___________________________________________________________</td>
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</tbody>
</table>

| 20. Please rate the quality of the time you spend together. |
| □ Excellent □ Good □ Fair □ Poor |
# Work History

21. Employment Status:  
- [ ] Full-time  
- [ ] Part-time  
- [ ] Retired  
- [ ] Student (high school)  
- [ ] Disabled  
- [X] Unemployed

22. Do you consider yourself under-employed?  
   - [ ] Yes  
   - [ ] No  

   *a. If yes, please check all that apply:*  
   - [ ] Employed below education level  
   - [ ] Employed below skill level  
   - [ ] Employed below pay level  
   - [ ] Employed below desired hours  
   - [ ] Other: _________________________

23. Current Employer:  
   - [ ] Not Employed  

   Employer: _____________________________  
   Occupation/job title: _____________________  
   Average number of hours worked per week:  
   _______________________

24. How much is your average individual monthly income?  
   $____________________

25. Do you have a written budget that addresses your income and spending?  
   - [ ] Yes  
   - [ ] No

26. Are you currently saving for periodic expenses (vacation, gifts, etc.), major expenses and/or retirement?  
   - [ ] Yes  
   - [ ] No

27. If not currently working, please briefly list previous jobs and reason for leaving:  
   ____________________________________  
   ____________________________________

   - [ ] N/A, currently working

28. I am satisfied in my current job.  
   - [ ] Strongly Disagree (1)  
   - [ ] 2  
   - [ ] 3  
   - [ ] 4  
   - [ ] Strongly Agree (5)

29. I would like assistance in finding a job.  
   - [ ] Strongly Disagree (1)  
   - [ ] 2  
   - [ ] 3  
   - [ ] 4  
   - [ ] Strongly Agree (5)

30. I would like to improve my job-related skills  
   - [ ] Strongly Disagree (1)  
   - [ ] 2  
   - [ ] 3  
   - [ ] 4  
   - [ ] Strongly Agree (5)

31. If unemployed or underemployed, please identify which areas you would be interested in working in (check all that apply):  
   - [ ] Food Service  
   - [X] Retail/Sales  
   - [ ] Customer Service  
   - [ ] Other

32. How often do you use a computer?  
   _______________________

33. Check any areas you would like additional assistance:  
   - [ ] Resume writing  
   - [ ] Interviewing  
   - [ ] Money Management  
   - [ ] Parenting  
   - [ ] N/A
Appendix B: Adverse Childhood Experiences Survey

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often or very often…
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?
Yes  No If yes enter 1 ________

2. Did a parent or other adult in the household often or very often…
Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
Yes  No If yes enter 1 ________

3. Did an adult or person at least 5 years older than you ever…
Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you?
Yes  No If yes enter 1 ________

4. Did you often or very often feel that …
No one in your family loved you or thought you were important or special? or Your family didn’t look out for each other, feel close to each other, or support each other?
Yes  No If yes enter 1 ________

5. Did you often or very often feel that …
You didn’t have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes  No If yes enter 1 ________
6. Were your parents ever separated or divorced?
Yes  No  If yes enter 1 ________

7. Was your mother or stepmother:
Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit at least a few minutes or threatened with a gun or knife?
Yes  No  If yes enter 1 ________

8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
Yes  No  If yes enter 1 ________

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?
Yes  No  If yes enter 1 ________

10. Did a household member go to prison?
Yes  No  If yes enter 1 ________

Now add up your “Yes” answers: _______ This is your ACE Score.
Appendix C: Behavioral Self-Regulation for Effective Relationships Scale (BSRERS)  
Developed by Wilson et al., 2005.

**Self-Report BSRERS** - Please report the extent to which the below statements are true of your own behavior in the relationship.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>1 Not True At All</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 Very True</th>
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<tbody>
<tr>
<td>1</td>
<td>I make an effort to seek out ideas about what makes for an effective relationship.</td>
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<td>2</td>
<td>I try to apply ideas about effective relationships to improving our relationship.</td>
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<td>3</td>
<td>I discuss the appropriateness of my goals for our relationship with my partner.</td>
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<td>4</td>
<td>If things go wrong in our relationship, I tend to feel powerless.</td>
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<td>5</td>
<td>I tend to put off doing anything about problems in our relationship in the hope that things will get better by themselves.</td>
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<td>6</td>
<td>I tend to fall back on what is comfortable for me in relationships, rather than trying new ways of relating.</td>
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<td>7</td>
<td>I work out practical ways or strategies to achieve the goals I set for myself.</td>
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<td>8</td>
<td>I actually put my intentions or plans for personal change into practice.</td>
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<td>9</td>
<td>Even when I know what I could do differently to improve things in our relationship, I cannot seem to change my behavior.</td>
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<td>10</td>
<td>I persist with plans for personal change even in the face of difficulties.</td>
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<td>11</td>
<td>If my partner does not appreciate the change efforts I am making, I tend to give up.</td>
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<td>12</td>
<td>I give my partner helpful feedback on the ways they can help me achieve my goals.</td>
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<td>13</td>
<td>When I have difficulty making a change, I tend not to ask for support from my partner.</td>
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<td>14</td>
<td>I adjust my goals or strategies for personal change in the light of feedback from my partner.</td>
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<tr>
<td>15</td>
<td>If the way I’m approaching change does not work, I can usually think of something else different to try.</td>
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<td>16</td>
<td>When things are not going so well in our relationship, I can usually think of something I can do to make it better.</td>
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Appendix D: Relationship Assessment Scale

Developed by Susan S. Hendrick, Ph.D.

Please mark on the answer sheet the letter for each item that best matches what you think or feel.

1. How well does your partner meet your needs?
   A  B  C  D  E
   Poorly  Below Average  Average  Above Average  Extremely well

2. In general, how satisfied are you with your relationship?
   A  B  C  D  E
   Unsatisfied  Slightly Satisfied  Average  More Satisfied  Extremely satisfied

3. How good is your relationship compared to most?
   A  B  C  D  E
   Poor  Below Average  Average  Above Average  Excellent

4. How often do you wish you had not gotten in this relationship?
   A  B  C  D  E
   Never  Rarely  Sometimes  Often  Very Often

5. To what extent has your relationship met your original expectations?
   A  B  C  D  E
   Hardly at all  Slightly  Average  Reasonably  Completely

6. How much do you love your partner?
   A  B  C  D  E
   Not much  A little  Average  Moderately  Very much

7. How many problems are there in your relationship?
   A  B  C  D  E
   Very few  Few  Average  Many  Very many
Appendix E: IRB Approval Letter

DATE: March 21, 2018

TO: Edward Neukrug

FROM: Old Dominion University Education Human Subjects Review Committee

PROJECT TITLE: [1207613-1] Examining Adverse Childhood Experiences and Adult Relationship Health for Predominantly Low-Income, Racial and Ethnic Minority Individuals

REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: March 21, 2018

REVIEW CATEGORY: Exemption category # 6.4

Thank you for your submission of New Project materials for this project. The Old Dominion University Education Human Subjects Review Committee has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact Jill Stefaniak at (757) 683-6696 or jstefani@odu.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Old Dominion University Education Human Subjects Review Committee's records.
CURRICULUM VITA

SANDY-ANN MARIA GRIFFITH
7732 Enfield Avenue, Apt. 204, Norfolk, VA 23505
Email: sgriffit@odu.edu, Phone: 407-617-5381

ACADEMIC BACKGROUND

Old Dominion University
PhD, Counselor Education & Supervision, CACREP-Accredited
Norfolk, VA
Summer 2018
Dissertation: The Relationship Between Childhood Adversity and Adult Relationship Health for Economically Marginalized, Racially and Ethnically Diverse Individuals

University of Central Florida
Master of Arts in Counselor Education, Mental Health Counseling, CACREP-Accredited
Orlando, FL
May 2011

University of Central Florida
Bachelor of Science in Psychology, Minor in Spanish
Honors in the Major, Magna Cum Laude
Orlando, FL
May 2005

LICENSES AND CERTIFICATIONS
National Certified Counselor, NCC # 335201
October 2019
Registered Mental Health Counselor Intern (FL), IMH # 9232
March 2022
Graduate Certificate in Marriage and Family Therapy, University of Central Florida
May 2011
Graduate Certificate in Play Therapy, University of Central Florida
May 2011

EVIDENCE-BASED COUPLE AND RELATIONSHIP EDUCATION CURRICULA TRAINING
Lead Instructor: Becoming Parents Program (BPP)
December 2011
Lead Facilitator: Prevention and Relationship Enhancement Program (PREP)
December 2011
Co-Facilitator: Practical Application of Intimate Relationship Skills (PAIRS)
June 2009

AWARDS AND RECOGNITION
Outstanding Doctoral Student in Counseling Award. ODU Darden College of Education, Department of Counseling and Human Services. (Spring 2018).
Southern Association for Counselor Education and Supervision (SACES) Research and Best Practice Award. (2015, October). Attendance in counseling by counselors: Identifying and overcoming barriers to counseling. $500.00. Awarded at the Association for Counselor Education and Supervision Conference, Philadelphia, PA.
Student Professional Development Award. ODU Darden College of Education, Department of Counseling and Human Services. (Fall 2015). $450.00

EMPLOYMENT & CLINICAL EXPERIENCES
Old Dominion University, Department of Counseling and Human Services
Graduate Teaching Instructor & Graduate Teaching Assistant
Norfolk, VA
Spring 2015 – Spring 2018

• Teach one undergraduate human services course per semester with approximately 30 students
• Create assignments, classroom activities, and examinations to assess students’ knowledge acquisition, in-depth understanding, and application of course material
• Prepare and present presentations weekly covering course content
• Address students’ academic needs: meeting with students individually to discuss class performance, assignment requirements, grading concerns etc.
• Maintain accurate attendance logs for each class meeting
• Create rubrics and grade students’ assignments, presentations, and examinations accordingly
• Document students’ grades for each assignment, presentation, and examination
• Upload students’ final grades to university online system

Graduate Research Assistant
• Collaborate with faculty mentors on manuscripts for publication
• Complete the department program evaluation for undergraduate human services program and graduate counseling programs (M.Ed., Ed.S., & Ph.D.) using Performance Cloud and Weave Assessment System
• Complete the accreditation self-study report for the human services undergraduate program
• Edit faculty website: Great Therapists of the Twentieth Century & Stories of Great Therapists

Center for Child and Family Services
Clinical Mental Health Counselor
• Conducted psychological intake assessments with non-mandated and mandated clients charged with shoplifting, domestic assault and battery, and prostitution
• Utilized trauma-informed counseling practices with children, adults, and families from diverse backgrounds reporting single-episode and/or severe, complex trauma
• Co-facilitated weekly domestic violence and combined substance abuse and domestic violence groups with men from diverse racial and ethnic backgrounds
• Co-facilitated monthly career-focused psychoeducational groups for individuals with a criminal record
• Maintained timely documentation for case load of approximately 15-20 clients from diverse backgrounds
• Attended weekly individual and group clinical supervision, and professional development trainings

Sentara CarePlex Hospital, Chaplaincy Services, Oncology Department
Clinical Mental Health Counselor
• Provided individual, couples, and family counseling to patients diagnosed with cancer
• Facilitated a bereavement support group for widows
• Attended weekly individual and group clinical supervision, and maintained timely documentation

Sentara Norfolk General Hospital, Level One Trauma Services
Clinical Mental Health Counselor
• Provided individual, couples, and family counseling to patients admitted for medical trauma care
• Consulted with medical professionals to ensure patient care
• Attended weekly individual and group clinical supervision, and maintained timely documentation

Old Dominion University, Human Services Department
Group Leader
• Facilitated an interpersonal process group for 9 human services undergraduate students for 11 weeks
• Maintained timely group process notes

The University of Central Florida Marriage and Family Research Institute
Family Services Counselor, Relationship Educator, Coordinator
• Facilitated an interpersonal process group for 9 human services undergraduate students for 11 weeks
• Maintained timely group process notes
• Conducted group intakes and administered clinical assessments to low-income, racially and ethnically diverse individuals and couples participating in a federally-funded research grant
• Evaluated clinical assessments to determine participants’ goodness of fit for relationship education program
• Conducted career planning visits with unemployed or under-employed participants seeking employment
• Provided brief individual and couples counseling services/case management
• Administered domestic violence screening assessment to female participants
• Established family intervention plans with individuals and couples, and monitored progress on goals
• Facilitated relationship education workshops for individuals and couples from diverse backgrounds
• Facilitated career-focused workshops: Resume and cover letter writing, and mastering the interview process
• Coordinated, launched, and facilitated supplemental special topics workshops for individuals and couples
• Tracked and reported participants’ attendance and completion of relationship education workshops
• Contributed to federal reports through data entry, management of data, and interpretation of data
• Attended weekly individual and/or group clinical and case management supervision
• Participated in departmental meetings with family services, recruitment, and training and workshop staff
• Interviewed, hired, trained, and supervised at least two undergraduate service learning students per semester

The University of Central Florida Student Counseling Center
Clinical Mental Health Counselor, Psychological Assessment Specialist
July 2011 – October 2011
• Conducted initial assessments for individuals and couples from diverse racial and ethnic backgrounds
• Provided crisis intervention and responded as the counselor on duty for walk-in appointments/emergencies
• Maintained accurate clinical records, and attended weekly individual supervision

The University of Central Florida Student Counseling Center
Clinical Mental Health Counseling Intern
August 2010 – May 2011
• Conducted initial assessments for individuals and couples from diverse racial and ethnic backgrounds
• Provided brief psychodynamic counseling services and conducted crisis intervention
• Co-facilitated one interpersonal process psychotherapy group with individuals from diverse backgrounds
• Facilitated outreach and psychoeducation programs with students from diverse racial and ethnic backgrounds
• Attended weekly professional development trainings, individual and group supervision, and case conference

The University of Central Florida Community Counseling Clinic
Clinical Mental Health Counseling Practicum Student
January 2010 – July 2010
• Conducted intake interviews and administered clinical assessments to individuals from diverse backgrounds
• Provided individual counseling services to individuals from diverse racial and ethnic backgrounds
• Provided play therapy services
• Completed clinical case conceptualization and documented progress accurately
Harbor House
Group Co-facilitator
Orlando, FL
January 2010 – April 2010
• Co-facilitated a psycho-educational group for women survivors of domestic violence
Certified Domestic Violence Court Advocate
Orlando, FL
August 2004 – December 2004
• Provided support for domestic violence survivors during court hearings
• Oriented survivors to the court-hearing process

The University of Central Florida Marriage and Family Research Institute
Family Support Coordinator
Orlando, FL
June 2009 – August 2010
• Facilitated PAIRS with low income, racially and ethnically diverse couples in a federally-funded study
• Linked low income, racially and ethnically diverse families with community resources
• Implemented the use of clinical interviewing skills and techniques
• Established and monitored progress on established goals
• Maintained accurate clinical records using Supporting Healthy Marriages software
• Maintained couple’s engagement and retention in the research through creative outreach strategies
• Facilitated and coordinated participation in Extended Marriage Activities workshops for couples

Learning Strategies
Clinician
Orlando, FL
August 2007 - December 2008
• Taught specialized educational programs to adults and children with learning disorders such as Dyslexia, ADD and ADHD etc.
• Developed individualized educational lesson plans, and completed progress reports

The Complete Learning Center
Clinician
Orlando, FL
• Taught specialized educational programs to adults and children with learning disorders such as Dyslexia, ADD and ADHD etc.
• Developed individualized educational lesson plans, and completed progress reports

Act Corporation
Adult Case Manager
Deland, FL
June 2005 – March 2006
• Offered managed care to clients from diverse backgrounds diagnosed with mental health disorders
• Advocated for clients in the community and linked them to community resources
• Monitored and assessed progress toward service plan goals

PUBLICATIONS
Peer-Reviewed Publications
Kalkbrenner, M. T., Neukrug, E. S., & Griffith, S. M. Appraising counselors attendance in counseling: The validation and application of the revised fit, stigma, & value (FSV) scale. Journal of Mental Health Counseling.


**In Preparation**


O’Hare, V., Daire, A. P., Wheeler, N., Griffith, S., Case Pease, J., & Gonzalez, J. Differences in family adjustment for parents of children with special needs.


**Non-Refereed Publications**


**PEER-REVIEWED PRESENTATIONS**

**International**


**National**

Kalkbrenner, M., Neukrug, E., & Griffith, S. (2017, October). *Barriers to seeking counseling: Development and validation of the Fit, Stigma, and Value (FSV) scale*. Presented at the Association for Counselor Education and Supervision Conference in Chicago, IL.


O’Hare, V. N., Griffith, S., & Kemer, G. (2016, June). *Becoming a clinical supervisor*. Presented at the 12th International Conference on Clinical Supervision in Garden City, NY.


Regional and State


Non-Refereed Presentations


Griffith, S. (2011, March). Allies advance: Training focused on oppression, heterosexism, homophobia, the coming out process, and the benefits and responsibilities of becoming an ally. Orlando, FL.


RESEARCH & SCHOLARLY ACTIVITIES

Consortium for Family Strengthening Research (CFSR) August 2014 – present

• Attend weekly team meetings, and cultivate research interests and agenda
• Collaborate with faculty and doctoral students on research and publications through a multi-university team including Old Dominion University, University of South Carolina, Virginia Polytechnic Institute and State University, and Virginia Commonwealth University
• Participate in advanced research methods training, and collaborate on grant proposals
• Present at local, regional, and national conferences

Process and Outcome Research Lab (PORL) Summer 2015 – Spring 2018

• Attend weekly team meetings, and cultivate research interests and agenda
• Mentor Master’s students interested in conducting research and pursuing a PhD degree
• Collaborate on grant proposals, research projects, and manuscripts with master’s and doctoral students, and faculty mentor
• Develop and conduct research using innovative Perception Analyzer technology
• Collaborate with behavioral healthcare community agency, The Ambulatory Care Clinic, to develop innovative research projects, seek external funding, and write competitive grants
• Present at local, regional, and national conferences

PROFESSIONAL TEACHING EXPERIENCE

• Doctoral level Counselor Education courses (Co-Instructor):
  o Advanced Counseling Supervision
Current Issues in Counseling and Counselor Education

Master’s level Counseling courses (Co-Instructor):
- Counseling and Psychotherapy Techniques
- Introduction to Counseling Supervision
- Theories of Counseling and Psychotherapy
- Practicum in Counseling
- Testing and Client Assessment

Undergraduate Human Services courses (Instructor of Record):
- Interpersonal Skills
- Human Services Methods
- Family Guidance
- Diversity Issues in Human Services (online)
- Internship in Human Services
- Career Development and Appraisal

COUPLE AND RELATIONSHIP EDUCATION - GROUP WORKSHOPS FACILITATED

The University of Central Florida Marriage and Family Research Institute, Orlando, FL
Relationship Educator
October 2011 – December 2014

- PREP Within My Reach for individuals
- Employment and Career Building for individuals and couples
- Supplemental Couple and Relationship Enhancement workshops for individuals and couples
- PREP Within My Reach Plus for male inmates at the Florida Osceola County Jail
- PREP Within Our Reach, Within Our Reach Plus, and BPP for couples

CLINICAL SUPERVISION

Old Dominion University, Norfolk, VA
Clinical Supervisor
Spring 2016 – Fall 2017

- Provided weekly individual supervision for six master’s level counselors during practicum training
- Provided weekly triadic supervision for two master’s level counselors during counseling skills training
- Provided weekly group supervision for three master’s level counselors during practicum training
- Reviewed counseling sessions, transcripts, case conceptualizations, and session notes
- Provided formative and summative feedback on skills, professionalism, and counselor dynamics

PROFESSIONAL MEMBERSHIPS

- National Board of Certified Counselors (NBCC)
- American Counseling Association (ACA)
- Association for Counselor Education and Supervision (ACES)
- Chi Sigma Iota (CSI) International Honors Society, Omega Delta Chapter at Old Dominion University
- National Council for Family Relations

SERVICE

- Assistant Editor, Journal of Human Services, Fall 2016 to Spring 2018
• Mentor, First and second year doctoral students at Old Dominion University, Fall 2015 to Summer 2018
• Eastern Virginia Medical School, Norfolk, VA
  o Collaborated with Dr. Caroline Bertolet on training modules for the International Medical Graduate Student Bootcamp, Summer 2017
• Proposal Reviewer, Southern Association of Counselor Education and Supervision, Spring 2016
• Search Committee, ODU New Faculty Hire (Successful), Spring 2016
• Peer Educator, ODU M-Power Women’s Center, Sexual Assault Free Environment Program, 2015
• Volunteer, Orlando World Outreach Center, Fall 2013
• Intern, University of Central Florida Victim Services Unit, Orlando, Florida, May 2004 – August 2004
• Certified Mentor, Mentoring Youth toward Success, Pine Hills, Florida, Fall 2003
• Mentor, Boys and Girls Club of Central Florida, Bithlo, Florida, Summer 2003

PROFESSIONAL DEVELOPMENT/CLINICAL TRAININGS ATTENDED
• 2017
  o Substance abuse assessment
  o Child abuse and trauma
  o Victims of crime
  o Child abuse reporting
  o Attachment, Regulation and Competency to treat traumatic responses in children and adolescents
  o Trauma assessment
• 2016
  o Trauma-Focused Cognitive Behavioral Therapy
  o Core self and inner child
  o An introduction to play therapy
  o Eye Movement Integration (EMI)
  o Working with the homeless population
  o Perception Analyzer 9.0 Training
• 2015
  o Mid-Atlantic Group Psychotherapy Society - “To Thine Own Self Be True: Translating Your Theory into Better Group Technique”
  o NBCC webinars
    ▪ Group and cultural dynamics of suicide
    ▪ Navigating moral injury with ACT and forgiveness exercises
    ▪ Preparing counselors of color
    ▪ Mindfulness – A promising intervention for trauma, ADHD, depression, and anxiety
    ▪ Positive psychology strategies for increasing engagement and strengthening relationships
  o Parents and Children Together Evaluation
  o Cengage Learning webinar
    ▪ Family Communication Interpretations and Implications
  o Self-Sufficiency Research Clearinghouse webinar
    ▪ The Impact of Incarceration on Families, Communities, and Offenders
  o Preparing Future Faculty workshops
Grantsmanship for Graduate Students, and Words of Wisdom from Graduate Program Directors and Faculty members

- Fathers Incorporated webinar
  - Beyond the Silence and Violence - Engaging Men in Advocacy Against and Prevention of Domestic Violence
- Center for the Advancement of Research Methods and Analysis
  - Academic-practitioner collaborative research: Its foundations, controversies, methods, pitfalls, costs, and benefits
- Graduate Teaching Assistant Instructor Institute

2014
- Practical Skills for Successful Relationships (PAIRS) Training
- DSM-5: Exploring new clinical perspectives
- Positive psychology strategies for increasing positive emotion

2013
- National Resource Center for Healthy Marriage and Families Webinar
  - Healthy Relationships, Employment, and Reentry after incarceration
- Self-Sufficiency Research Clearinghouse
  - Family Structure, Stability and Child Well-being Webinar, Dr. Terry-Ann Craigie
- Recognize, Respond, and Refer: Dynamics of Domestic Violence (also completed in November 2012 and November 2011)
- Florida Department of Children and Families Mandatory Reporting
- Continuum of Conflict and Control: Applications for Research and Practice - Domestic Violence Typologies, Dr. Ryan Carlson, Ph.D., LMHC
- The Brain, Sex and Intimacy, Dr. Andrew Daire, Ph.D., LMHC
- UCF Marriage and Family Research Institute
  - PREP Stress and Anger Management
  - Gary Chapman’s The 5 Love Languages

2011
- Working with Latino Students, Dr. Tiffany Schiffner
- Working with Personality: PDM, Dr. Andrew Luchner
- Ethics II: Taboo Topics, Dr. Karen Hofmann
- Working with Individuals Affected by Familial Substance Abuse, Dr. Rikki Mock
- Eating Disorder Issues: Assessment and Therapy, Dr. Dina Glaser
- Alcohol and Other Drug Issues: Assessment and Therapy, Dr. Terrence Porter
- Multicultural Counseling: Working with Black Students, Dr. Stacey Pearson
- Welcome to my strange little world: Asperger’s Syndrome, Teresa Daly

2010
- Ericksonian Hypnosis in Psychotherapy
- Crisis Management, Zhaleh Mostofi
- Trauma Recovery, Dr. Tim Fortney
- Identity Development Models, Dr. Jeanene Robinson-Kyles
- Diagnosis and Case conceptualization, Shalini Roy
- Ethics 1: Decision Making, Dr. Andrew Blair
- Conceptualization and Brief Dynamic Psychotherapy, Dr. Andrew Luchner
- Privilege, Power and Oppression, Michael Freeman
- Common Factors in Therapy, Dr. Karen Hofmann
- Treating Trichotillomania, Mary Travis, PhD
- Group Theory, Process and Practice, Dr. Andrew Blair
- Exploring our Identities, Dr. Karen Hofmann