

Front Porches and Freeways: Does Rural or Urban Residence Matter for Couple Relationship  
Education Outcomes?

by

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## **Abstract**

The purpose of this study was to advance explorations of the possible differential effects of rural versus urban residence and income on individuals' couple relationship outcomes following participation in a couple relationship education program. The study used measures of couple quality, positive interactions, and negative interactions as indicators of relationship outcomes both at baseline and at post-test to capture a better picture of possible factors involved in change. Results of this study indicated that, at baseline, urban individuals report statistically significant, higher scores of couple quality than rural individuals. Higher couple quality was also reported by higher income individuals, with lower income individuals reporting lower couple quality. Baseline levels of positive and negative interactions did not differ by residence or income. At Time 2, statistically significant effects of income were found for males' negative interactions, with lower income males reporting statistically significantly more change than other income groups. No other statistically significant effects emerged at Time 2. These results indicate that participants, regardless of rural/urban residence or level of income, benefit similarly from CRE programming. Baseline results indicating that urban individuals report higher couple quality than rural individuals suggest a need for further exploration into relational differences between rural and urban populations.

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## **Introduction**

In recent decades, research has indicated a positive impact of numerous couple relationship education (CRE) programs upon many couples, children, and families as a whole (Hawkins & Erickson, 2015). CRE programs are often effective in strengthening relationship quality and improving key healthy relationship skills, including communication and problem-solving skills (Gottman & Silver, 1999; Reardon-Anderson, Stagner, Macomber, & Murray, 2005) and commitment and forgiveness (Fincham, Stanley, & Beach, 2007). Effective CRE programs have the potential to be beneficial not only for the couple relationship, but for the whole family (Hawkins & Erickson, 2015). CRE programs have been shown to be effective to varying degrees based on individual participant variables, such as race, but differences in effectiveness based on more contextual variables, such as rurality of residence, have not been the focus of recent research. However, though we know that differences exist in family processes between rural and urban families, such as in dyadic coping (Falconier, Randall, Bodenmann, 2016), what is less well understood is how effects of CRE programs may differ across populations, such as urban and rural. Therefore, this study seeks to examine potential differences in CRE outcomes between urban and rural couples in order to determine if further study examining the customization of CRE programming would better address the needs of rural or urban populations.

The understanding and application of theory is critical to the design, implementation, and evaluation of effective CRE programs (Adler-Baeder, Higginbotham, & Lamke, 2004;

Higginbotham, Henderson, & Adler-Baeder, 2007). The design of many CRE programs target changes in behavior based upon behavioral, social learning, and experiential theory assumptions (Markman & Rhoades, 2012). Bandura's social learning theory (1977) states that individuals model their relationship behaviors after examples provided in a social context, as well as develop an understanding of which behaviors will result in positive or negative consequences (Bandura & Walters, 1963), presumably directing individuals to engage in rewarding, rather than punitive, interactions (Thibaut & Kelley, 1959). The classroom structure of CRE programs offers participants an interactive environment where classmates and facilitators can provide social modelling needed to influence a participant's behavior. Experiential learning theory suggests that such interaction between individuals and their environment is necessary for lasting change to occur (Kolb & Kolb, 2012). Experiential learning theory further suggests that learning in a reciprocating environment, such as a CRE program class, will spur learning about positive behaviors and resulting benefits by providing the opportunity to practice such behaviors in class and then to implement them in everyday lives (Carroll & Doherty, 2003).

Many studies have explored the effectiveness of CRE, with conclusions mostly demonstrating positive change but generally, positive change (Rauer, Adler-Baeder, Lucier-Greer, Skuban, Ketring, & Smith, 2014; Williamson, Altman, Hsueh, & Bradbury, 2016), although no change or negative effects have been found in some studies (Wood, McConnell, Moore, Clarkwest, & Hsueh, 2012). Frequently, CRE program design specifically targets certain groups, differentiated by demographics, family situation, gender, or income level. A few programs have taken the initiative to conduct self-evaluations to understand the needs of their



intended recipients, subsequently tailoring their curricula to meet those needs. For example, the *Smart Steps for Stepfamilies* curriculum uses research-based material to address the unique needs faced by stepfamily couples (Higginbotham & Adler-Baeder, 2010; Lucier-Greer, Adler-Baeder, Harcourt, & Gregson, 2014; Reck, 2013; Higginbotham & Skogrand, 2010). Some analyses have indicated that relationship education is more beneficial for at-risk populations, such as those with a lower income (Adler-Baeder, Bradford, Skuban, Lucier-Greer, Ketring, & Smith, 2014; Adler-Baeder et al., 2010; Carlson, Barden, Daire, & Greene, 2014) while a recent meta-analysis (Hawkins & Fackrell, 2010) found a slightly less efficacious result for lower income participants as compared to their middle-class counterparts. Researchers suggest that numerous life stressors and environmental factors of lower-income individuals might have contributed to the greater effects in studies of higher resource couples (Hawkins & Fackrell, 2010). Individuals residing in a rural area tend to be of lower income than those in urban areas due to geographic dispersion, fewer available jobs, and the thinness of the rural labor market (Muskinski, Bernasek, & Weiler, 2015), suggesting that rural individuals might be among those considered at greater risk. Since rural individuals tend to be more at-risk, and due to mixed results, it remains an empirical question whether rural or urban participants benefit more from CRE.

Examination of the effectiveness of programs designed and focused toward specific audiences might provide both funding sources and those managing the programs with a more significant return on their investment. A study conducted at Duke University, examining the effects of mindfulness on its population of emerging adults, explored several methods for tailoring their curriculum to maximize the benefits for participants, including experimenting with

number of classes and class duration, class size, diversity of participants, and the organization of the curriculum (Rogers, 2013). A report published in the *Rural Educator* (Hill & Turney, 2016) emphasized the need for educators targeting rural areas to customize their programming to meet the unique needs – such as poverty and lack of resources – of those areas. Hill and Turney stated that education is not “one-size-fits-all,” rather necessitating a multifaceted, tailored approach, which applies to programs seeking to target rural and urban populations. More research is needed to determine if rural and urban families might warrant different approaches in couple relationship education.

### **Rural and Urban Communities**

According to the 2010 US Census, 20% of Americans live in rural area (US Department of Commerce, 2010). In the state of Alabama, where data collection occurred for this study, the percentage climbs to 41% of residents (US Department of Commerce, 2010). Rural communities present unique challenges in research, such as researchers’ difficulties accessing rural families. Compared with rural communities, urban communities have received greater research attention. For example, we know that barriers such as geographic remoteness and the insular nature of many rural communities sometimes promotes a general mistrust of outsiders (Gumpert & Saltman, 1998; Campbell, Gordon, & Chandler, 2002; Campbell, Kearns, & Patchin, 2006), barriers not generally found when pursuing urban research. Beyond the challenge of access, residents of rural areas typically have, lower incomes than urban residents, possibly due to fewer jobs available, geographic dispersion, and the thinness of the rural labor market (Muskinski, Bernasek, & Weiler, 2015). Many rural communities in the United States have higher rates of

drug use than their urban counterparts, higher rates of depression (Foxhall, 2000), higher rates of tobacco use (Roberts, Doogan, Kurti, et al., 2016), and higher stigma towards mental illness (Jones, Cook, & Wang, 2011). Additionally, rural communities, compared with urban areas, have reported poorer outcomes for victims of domestic violence (Edwards, 2015), lower educational attainment (Tennessee Education Commission, 2013), and poorer child and youth outcomes (Jiang, Sun, & Marsiglia, 2016). Though research has shown that there are fewer resources and more mental health issues in rural areas than urban, the specific needs of the communities as reported by the mental health practitioners serving those areas remain to be identified (Campbell, Kearns, & Patchin, 2006). Such difficult issues impact many aspects of life for residents of these areas, and any program targeting said areas might benefit from taking such influences into consideration in order to offer the best advantages for its participants.

Despite these challenges, it is imperative to understand how programs may differ in their effectiveness in rural versus urban communities. For example, rural participants in relationship education programs differ from their urban counterparts in several ways that might influence the outcome of their participation in those programs. Differences in mental health needs include income disparities; access to mental health services; social support; and differences in community satisfaction, which tend to be higher in rural individuals (Lemke, 1992; McDonald, Curtis-Schaeffer, Theiler, & Howard, 2014; Muskinski, Bernasek, & Weiler, 2015; Theodori, 2001; Ziller, 2010).

While there are significant challenges, there may also be some advantages to living in a rural area versus an urban area. Furthermore, the closeness of rural communities may be much to

their benefit and an effective area to target. Theodori (2001) demonstrated that individuals who report higher levels of community satisfaction and community attachment are more likely to report higher levels of individual well-being, which would seem to counter the numerous challenges associated with life in a rural area. Older research indicates that individuals residing in rural areas tend to be happier and more satisfied with their communities compared to urban residents (Campbell, 1981; Marans & Rodgers, 1975; Ploch, 1985; Rodgers, 1980), though the absence of recent research on this subject suggests that such findings could be outdated. Rural individuals have generally higher rates of religiosity, especially in the South (Chalfant & Heller, 1991) and have generally lower rates of divorce (Shelton, 1987) than urban individuals, though much of the research on rural-urban differences in divorce rates is also older (Lillywhite, 1952; Shelton, 1987; Woodrow, Hastings, & Tu, 1978). This finding could indicate that CRE programs could benefit from targeting the community aspect of both rural and urban areas as a resource to implement change for families.

Additionally, such individuals might find sustained benefits from engaging in a relationship education program in an environment where they feel community support. Lemke (1992) reported that urban individuals expressed more wanted and actualized inclusion than the rural individuals in his study, though this could be due to a cultural difference, where rural residents considered themselves an integral part of their communities and felt less need to reach out to others of those with whom they felt they had an assured relationship. Lemke also reported that individuals in urban and rural areas related differently to their support systems, with urban individuals reaching out more frequently to their communities and relying more on their

secondary relationships. Rural individuals interacted largely with their primary relationships and sought interpersonal contact less often, despite their greater isolation, though the relationship warmth and relational reward of residents in both areas received similar ratings (Lemke, 1992). Such results suggest that clinicians, practitioners, and researchers should consider the differences in delivery of social support and community attachment when approaching the delivery of mental health and relationship education services to the differing populations. Such differences may be relevant, especially when considering the established support system of rural residents versus the more variable and less significant, if larger, amount of support provided by individuals in communities of urban residents (Lemke, 1992).

Other domains outside of CRE, such as substance abuse and medical prevention programs, have found methods effectively targeting populations outside urban areas. For example, the National Institute of Health conducted a study designed to target rural populations in order to determine the best methods to institute cardiovascular disease prevention programs (Melvin, Corbie-Smith, Kumanyika, et al., 2013). The researchers emphasize the importance of engaging the community in order to effect lasting change, as the community is integral to the life of the individual. By integrating the community factors into the program design, such as integrating programming and facilitators to reflect local diversity and culture, program facilitators can also take advantage of the existing community infrastructure and resources. Additionally, considering community weaknesses and vulnerabilities, building a collaborative spirit that leads to sustainable change within communities is indicated (Melvin, Corbie-Smith, Kumanyika, Pratt, Nelson, Walker, & ... Ricketts, 2013). Finally, programing implemented in a

workshop style designed to involve a larger number of individuals often serves to reduce the deterring impact of stigma often associated with more individualized therapy and encourages greater individual participation in a larger group (Brown, Boardman, Elliott, Howay, & Morrison, 2005), an approach which can be beneficial for both rural and urban participants.

Another study investigated the differences between rural and urban residence after enrollment in the Parent-Child Assistance Program (PCAP), designed to assist high-risk substance-abusing mothers in nine counties in the state of Washington (Shaw, Grant, Barbosa-Leiker, Fleming, Henley, & Graham, 2015). Shaw et al., 2015) found that, though both rural and urban women derived significant benefit from the PCAP in terms of drug usage, they also found distinctions. Rural women had lower usage rates of harder drugs such as heroin and methamphetamines and higher rates of suicidality and alcohol use in the study. Such differences could indicate that women in rural areas might benefit from more targeted programming, specifically focusing on alcohol abuse and suicidal ideation.

Regarding relationships one study found that family structure and familial relationships are of poorer quality in rural areas as compared to urban, which would influence the impact of a CRE program designed to encompass individuals in both regions (Jiang, Sun, & Marsiglia, 2016). Thus, due to the many unique variables influencing the lives of residents in each geographical region, participants might benefit from elements of the curricula tailored to their specific socioeconomic needs. The poorer relationships of rural couples could indicate that, because of their greater needs at baseline, they respond more to programming than urban couples and show more improvement over time. In addition, urban participants might be less responsive

and show less improvement over time compared with rural participants, due to their being less at-risk before the beginning of the program.

### **Effects of Income**

Research has shown that lower income individuals begin CRE programs at higher levels of relational distress and need compared to less at-risk individuals (Conger et al., 1990; Ooms & Wilson, 2004), due to the stress of economic pressures. As a result, several studies have shown that lower income families especially benefit from CRE training (Adler-Baeder, et al., 2004; Conger, Rueter, & Elder, 1999; Williamson, Altman, Hsueh, & Bradbury, 2016), as their lower levels of predictors of couple satisfaction and quality, such as positive interactions (Fein, 2004), allow for greater improvement over time.

In their meta-analysis, Conger and Elder (1994) reported that economic pressure increased stress-induced outcomes such as irritability, depression, and psychological distress, which lowers marital quality. Newly married wives, when less financially pressured, are better able to balance their new roles in the relationship (Marks, Huston, Johnson, & MacDermid, 2001). Financial stress contributes to the exacerbation of other issues already in existence within the marital relationship, as financial pressure causes a “spill over” effect, causing other issues within the relationship to appear worse in the baleful light of financial hardship (Freeman, Carlson, & Sperry, 1993). Not only does low-income impact marital quality, but it also negatively affects other familial areas, such as parenting ability (Lavee, Sharlin, & Katz, 1996). Individuals living in rural areas tend to be of lower income/SES overall compared to urban (Muskinski, Bernasek, & Weiler, 2015), which may affect the responsiveness of rural individuals

to relationship programming based on their increased level of need.

### **Critical Indicators of Overall Relationship Health**

The couple dyad is the foundation of the family, therefore when a couple undergoes a change in their relationship, the effects of the change ripple outward through the rest of the family system, changing the way parents interact with their children and the way children interact with each other (Adler-Baeder, Shirer, & Bradford, 2007; Adler-Baeder et al., 2016). The National Extension Relationship and Marriage Education Model (NERMEM) (Futris & Adler-Baeder, 2014) outlines seven research-based principles critical to successful CRE programs based on studies of predictors of marital quality: *Choose, Care for Self, Know, Care, Share, Manage, and Connect*. The principle of *Choose* emphasizes the importance of committing effort to the relationship by making intentional relationship decisions. *Care for Self* reminds learners that taking care of oneself spiritually, emotionally, sexually, and physically is paramount for overall relationship health. Knowledge of one's partner is the focus of the *Know* principle, instructing learners of the importance of gaining knowledge about their partner's world. *Care* focuses on showing support of, kindness to, and affection for one's partner. Connectivity and friendship are the focus of the *Share* principle. *Manage* focuses on how partners deal with conflicts, difficulties, life events, and stressors that can surround and possibly influence the relationship. Finally, *Connect* directs focus outward, stressing the importance of building community and social support beyond the couple relationship. The basis for the NERMEM principles is an extensive review of decades of research on predictors of marital quality and are determined to be of paramount importance in the business of improving relationships through



CRE programs. NERMEN enables the customization of programming to target unique audiences while building upon a foundation of evidence-based principles, as well as indicating that curricula emphasizing the seven NERMEN principles have a research-based probability of success.

The many factors discussed above combine to contribute to relationship health. To streamline the focus of this study, measures of positive and negative interactions, which respectively represent the *Care* and *Manage* NERMEN principles, as well as a measure of overall couple quality, were chosen to examine the effect of rural/urban residence and income on CRE participants. Additionally, the measures of couple quality, positive interactions, and negative interactions utilized in the present study had previously been established as reliable (Adler-Baeder et al., 2010; Adler-Baeder et al., 2013; Rauer et al., 2014) as well as other studies examining relationships (Karney, Bradbury, Fincham, & Sullivan, 1994; Ketring et al., 2017; McNulty & Karney, 2004; Schramm & Adler-Baeder, 2011).

***Positive and Negative Interactions.*** The behavior exchange model (Jacobson, McDonald, Follette, & Berle, 1985) indicates that relationship partners behave in certain ways and evaluate the interactions that follow according to a cost-benefit ratio. In short, “Is what I receive worth what I give?” Previous research has indicated the importance of positive interactions in a couple relationship, recommending a ratio of five positive interactions for every negative interaction during conflict resolution (Hawkins, Carrere, & Gottman, 2002) and up to fifteen positive interactions for every one negative interaction in general interaction (Gottman, 1999). CRE programs draw upon research that demonstrates that positive couple interactions, such as being

supportive of, expressing love to, or doing something nice for one's partner, are predictive of higher marital quality and satisfaction (Canary, Stafford, & Semic, 2002; Gottman & DeClaire, 2001; Huston, Coughlin, Houts, Smith, & George, 2001). Frequent negative interactions, such as defensiveness or contempt, often have negative effects on the mental and physical health of partners, while couples who engage in frequent positive interactions, including humor and affection, do not demonstrate those negative effects (Levinger & Moles, 1979). Couples who have more positive interactions than negative ones are more likely to feel positively about their relationship, which boosts one's relational confidence and the stability of the relationship (Stanley, Amato, Johnson, & Markman, 2006). Additionally, couples who make a habit of interacting positively with each other, rather than negatively, are likely to have an increased ability to handle the difficulties of their relationship as well as an increased amount of trust in their partner (Karney & Bradbury, 2000). Especially during conflict, an interaction containing positive affect can be predictive of the future health of the relationship (Driver & Gottman, 2004). Couples with absent or low occurrence of positive affect in interactions, more than the presence of negative affect interactions, are more likely to divorce (Gottman, 1994).

Multiple studies have demonstrated the positive effects of CRE upon the levels of positive and negative interactions in couple and family relationships (Adler-Baeder et al., 2013; Rauer et al., 2014; Schramm & Adler-Baeder, 2012). In their investigation of effects following CRE program participation, Rauer et al. (2014) found that improvements in the amount of positive interactions coupled with decreases in negative interactions predicted increases in the level of commitment to the relationship, which enhanced marital quality overall.

*Couple Quality.* The determination of couple quality involves many factors, including both couple-determined factors such as communication and sex and environmental factors such as job stress or poverty. Investigations of marital quality in rural areas or comparisons to urban marital quality are rare and are more than 30 years old. For example, Burchinal's study (1961) of marital satisfaction measured differences in educational attainment in addition to occupational prestige of the husband only. Burchinal's conclusion that the husband's occupation was most significantly predictive of the wife's marital satisfaction is likely different more than fifty years later, but his statement that indicators of marital satisfaction are not equivalent in rural and urban couples needs further study to determine its veracity in a more modern age. Improving couple satisfaction is an understood goal of CRE, and exploring whether rural and urban individuals have different couple quality outcomes in CRE courses is a beginning step toward better understanding the needs of targeted audiences.

While many CRE studies include rural participants, there is a dearth of literature that consider rurality as a variable and no studies measuring positive and negative interactions specifically among rural couples exists. The few studies regarding positive relational interactions among rural individuals focuses on student-teacher relationships (Zeman, 2003) or parent-child relationships (Thompson, 1995). Exploring how CRE programs impact the participants' outcomes regarding positive and negative interactions in rural families can lead to studies of rural and urban couples' needs in CRE and a better understanding of the most effective ways to impact relationships in different settings.

## **Current Study**

Based on review of the available literature, which indicates several variations between rural and urban populations, including average income, the current study seeks to add to the literature by examining whether mean differences in measurements of relationship health exist between participants at baseline and in change over time, based upon rural or urban residence and income. For the purposes of this study, the Alabama Department of Public Health (ADPH) definitions for a rural or urban area based upon population per square mile, the size and number of cities in a county, percentage of total employment comprised by employment in public education, and per capita agricultural sales are utilized (2007). Of Alabama's 67 counties, 12 meet the criteria outlined by ADPH for urban counties: Calhoun, Etowah, Houston, Jefferson, Lauderdale, Lee, Madison, Mobile, Montgomery, Morgan, Shelby, and Tuscaloosa. The remaining 55 counties are rural.

Because previous research is limited, the current study explores two research questions. First, do CRE participants differ in relationship quality at baseline, based on rural or urban residence or income (RQ1)? Secondly, do CRE participants demonstrate differences in change based upon rural or urban residence or income (RQ2)? Based on indicators found in previous research of differences between rural and urban regions in culture, social interactions, as well as numerous other areas, it is possible that differences could exist in levels of relationship quality following participation in a CRE program. Exploring these research questions will help increase our knowledge of potential differing needs of those individuals encompassing such a large percentage of the population, as well as indicate if future research is necessary to improve our

understanding of the best way to serve urban and rural audiences.

## Methods

### Participants

Recruitment of participants was part of a federally funded healthy marriage and relationship education initiative. Volunteer participants eliminated from the sample indicated that they were not currently in a relationship, leaving 2,729 participants. Of those who provided this information, 1,833 (67%) were from urban counties while the remaining 896 (33%) participants were from rural counties in Alabama.

On average, participants who answered questions were 35 years of age (SD = 11.5; range 15 to 84 years) and the majority were female (68%). Fifty-two percent of participants were married, 11.8% engaged, and 35.3% dating. Thirty-three percent of participants reported attending class with their spouse. Table 1 includes complete demographics grouped into rural and urban categories.

Table 1.  
*Demographic Characteristics of Participants by Rural/Urban Residence*

	Rural		Urban		$\chi^2$	df
	N	%	N	%		
Gender						
Men	265	29.6	603	32.9	0.09	2.87
Women	626	69.9	1226	66.9		
Unspecified	5	0.6	4	0.2		
Relationship Status					0.90	1.09
Married	464	51.8	980	53.5		

Engaged	109	12.2	211	11.5		
Dating	323	36	642	35		
Education					0.00***	54.50
Less than high school	182	20.3	340	18.5		
Completed high school or GED	267	29.8	393	21.4		
Some college	198	22.1	382	20.8		
2-year college/technical degree	91	10.2	218	11.9		
4-year college degree	74	8.3	267	14.6		
Post college degree (ex: Master's, Ph.D., M.D., J.D.)	38	4.2	154	8.4		
Ethnicity					0.07	11.68
European-American	470	52.5	862	47		
African-American	375	41.9	884	48.2		
Other	37	4.1	65	3.5		
Employment Status					0.01***	8.70
Full-time	358	40	833	45.4		
Part-time	97	10.8	194	10.6		
Unemployed	374	41.7	667	36.4		
Total Household Income					0.00***	29.56
< \$7,000	202	22.5	406	22.1		
\$7,000 - \$13,999	89	9.9	180	9.8		
\$14,000 and \$24,000	124	13.8	168	9.2		
\$25,000 and \$39,000	126	14.1	241	13.1		
\$40,000 and \$74,999	150	16.7	363	19.8		
\$75,000 and \$99,999	51	5.7	157	8.6		
> \$100,000	30	3.3	107	5.8		

\*\*\* =  $p < 0.001$

## Procedures

Participant recruitment occurred in communities across 60 Alabama counties through local family and children service centers and by distributing advertisement materials in surrounding areas. Participants had the opportunity to choose one of four programs, all of which were open to the community. Study participants completed a pre-program questionnaire containing approximately 130 questions, requiring about 30-45 minutes to complete. The questions pertained to their views of their relationships and families in reference to beliefs, attitudes, experiences, and behaviors. Each participant also answered basic demographic and socioeconomic questions about their households. Appendix A. includes the items from the pre-program questionnaire. Following completion of the CRE course, each participant received a post-program questionnaire identical to the pre-program survey, excepting the addition of questions pertaining to instructor and class evaluation.

Participants had the option of choosing one of four possible curricula that most suited their needs, all of which addressed the core content areas described below. The National Extension Relationship and Marriage Education Model (NERMEM) (Futris & Adler-Baeder, 2014) principles state that curricula which emphasize seven core content areas (*Choose, Care for Self, Know, Care, Share, Manage, and Connect*) are likely equivalent in effectiveness. The four curricula options, which are all research-based and grounded in a systemic framework included: *Together We Can* (TWC: Shirer, 2009); *Mastering the Mysteries of Love* (MML: Guerney & Ortwein, 2004); *Basic Training for Black Couples* (BTBC: Slack & Muhammad, 2005), and *Smart Steps for Stepfamilies* (SS: Adler-Baeder, 2007). The four curricula were consistent with



the NERMEM principles. All classes occurred on a rotating basis, and each individual completed at least one class of a CRE course, the full length of which was 6-12 classes, depending upon the curriculum. Previous studies using these data found no differences based on curriculum when curriculum was controlled (Garneau & Adler-Baeder, 2015; Gregson, Adler-Baeder, Parham, Ketring, & Smith, 2012).

## **Measures**

### ***Independent Variables***

*Rural or urban residence.* To determine place of residence, participants indicated a written answer to the question “In what county in Alabama do you live?” Counties received classification as rural or urban based on categorization data obtained from the Alabama Department of Public Health (2007). The variables were then dummy coded, with ‘1’ indicating rural and ‘0’ indicating urban. In the sample of respondents, approximately 67% (N = 1,829) indicated urban residence and 33% (N = 891) indicated rural residence.

*Income.* Income was measured as an interval variable, participants completing a survey item asking the question “What is your total household income (gross income) before taxes in the current year?” and indicating one of seven possible answers (range = *less than \$7,000 to \$100,000 or more*). Twenty-two percent of the participants had a combined household income that fell below \$7,000, 9.9% were between \$7,000 and \$13,999, 10.7% were between \$14,000 and \$24,000, 13% were between \$25,000 and \$39,000, 19% of the partners’ combined income fell between \$40,000 and \$74,999, 7.6% had an income between \$75,000 and \$99,999, and 5%

had an income that totaled over \$100,000.

### ***Dependent Variables***

*Couple/Marital Quality.* Two different scales measured couple relationship quality. The first measure of relationship quality utilized the Quality of Marriage Index (QMI; Norton, 1983). The 5-item measure asked participants to indicate, using a 7-point Likert scale (answers ranging from 1 = *very strongly disagree* to 7 = *very strongly agree*), the extent to which they agreed with five statements about their relationship, including “I feel like a part of a team with my spouse/significant other” and “Our marriage/relationship is strong”. For the full measure, see Appendix A. A mean score was computed from these items with higher scores indicating greater marital quality. Cronbach’s alphas ranged from 0.97 to 0.98 across time points for this dataset.

*Positive Interactions.* Participants’ positive interactions with their partners was measured using an 8-item scale (Huston & Vangelisti, 1991). The questions were each answered using a 4-point Likert scale (1 = *never*, 2 = *sometime, but not every day*, 3 = *once or twice a day*, 4 = *often throughout the day*). Questions measured the frequency of behaviors such as saying “I love you” to one’s partner, doing something nice for one’s partner, and initiating sex with one’s partner. For the full measure, see Appendix A. A mean score was computed from these items with higher scores indicating greater frequency of behaviors. Using this dataset, Cronbach’s alphas ranged from 0.87 to 0.86 across time points.

*Negative Interactions.* Participants’ negative interactions with their partners was measured using a 7-item scale (Huston & Vangelisti, 1991). The questions were each answered using a 4-point Likert scale (1 = *never*, 2 = *sometime, but not every day*, 3 = *once or twice a day*,

4 = *often throughout the day*). Questions included measurements determining the frequency of dominating conversation with one's partner, seeming bored or uninterested by one's partner, and turning down or avoiding a partner's sexual advances. For the full measure, see Appendix A. A mean score was computed from these items with higher scores indicating greater frequency of behaviors. Using this dataset, Cronbach's alphas ranged from 0.80 to 0.82 across time points.

#### Plan of Analysis

First, descriptive statistics for all study variables will be calculated (i.e., mean, standard deviation, skewness). Secondly, in order to assess whether mean differences in relationship quality exist for participants at baseline (Time 1), based on rural or urban residence or income, two-way analyses of variance (ANOVA) will be conducted (RQ1). Data for male and female participants will be tested separately to avoid possible confounding effects for coupled participants. Finally, in order to determine whether individuals experience different patterns of change over time, based on rural or urban residence and income, additional two-way analyses of variance (ANOVA) will be conducted (RQ2), male and female data again tested separately.

## Results

### Descriptive Statistics and Correlations

Before testing specific research questions, descriptive statistics for the outcome variables were conducted and are presented in Table 2. Correlations were conducted to explore whether either of the independent variables demonstrated any relationship to the three outcome variables, at Time 1 or Time 2. Mean couple quality scores for females and males at baseline were a moderate 4.88 and 5.17 on a scale of 1 to 7. Positive and negative interaction scores were both between 2 and 3 on a 4-point scale, indicating that participants had mean composite scores of each type of both positive and negative interactions approximately once per day, according to the answers on the scale.

Table 2  
*Descriptive Statistics at Time 1 for Composite Couple Quality, Composite Negative Interactions, and Composite Positive Interactions by Gender*

	Male				Female			
	N	<i>M (SD)</i>	<i>Mdn</i>	<i>sk (SE)</i>	N	<i>M (SD)</i>	<i>Mdn</i>	<i>sk (SE)</i>
Couple Quality	851	5.17(1.49)	5.40	-0.77(.08)	1766	4.88(1.57)	5.00	-.63(.60)
Negative Interactions	832	2.14(.69)	2.20	0.35(.09)	1793	2.29(.81)	2.20	.62(.60)
Positive Interactions	851	2.90(.62)	2.88	-.20(.08)	1762	2.90(.68)	3.00	-.31(.06)

Tables 3 and 4 include the correlation results for females and males, respectively. For

women, rural/urban residence positively correlated to couple quality at baseline, but not at Time 2. Income, for women, positively correlated to couple quality at baseline and negatively correlated to both positive and negative interactions. At Time 2, income correlated in the same pattern with couple quality and negative interactions but did not correlate with positive interactions. Couple quality positively and negatively correlated with positive and negative interactions, respectively.

For men, rural/urban residence correlated with income at both time points but correlated with couple quality at baseline only. Male income correlated positively and negatively with couple quality and negative interactions, respectively, at both time points. Positive interactions did not statistically significantly correlate with male income or residence at either time point.

Table 3.  
*Correlations for Female Participants at Time 1 and Time 2*

	Rural/Urban	Income	Couple Quality	Negative Interactions	Positive Interactions
Rural/Urban	-	-0.03	-.07**	0.01	-0.05
Income	-0.03	-	.19**	-.17**	-.06*
Couple Quality	0.001	.21**	-	-.55**	.46**
Negative Interactions	0.002	-.15**	-.56**	-	-.30**
Positive Interactions	0.001	-0.03	.47**	-.35**	-

*Note.* Time 1 above diagonal, Time 2 below diagonal, \*  $p < .05$ , \*\*  $p < .01$ .

Table 4  
*Correlations for Male Participants at Time 1 and Time 2*

	Rural/Urban	Income	Couple Quality	Negative Interactions	Positive Interactions
Rural/Urban	-	-.13**	-.09**	0.06	<-0.01
Income	-.13**	-	.16**	-0.12**	-0.1
Couple Quality	-0.03	.14**	-	-0.45**	.40**
Negative Interactions	0.06	-.17**	.42**	-	-.19**
Positive Interactions	0.05	-0.05	.48**	-.25**	-

*Note.* Time 1 above diagonal, Time 2 below diagonal, \*\*  $p < .01$ .

**Research Question 1: Do mean differences in measures of relationship health exist between participants at baseline, based upon rural or urban residence and income?**

**Couple Quality.** To avoid confounding effects for coupled participants, separate (male and female) two-way analyses of variance (ANOVA) examined the possible effect of rural/urban residence and income on couple quality (Table 5). The effect of rural/urban residence on couple quality was found to be statistically significant for both females,  $F(1, 1557) = 8.02, p < 0.01$ , partial eta squared = 0.01, and for males,  $F(1, 763) = 4.66, p < 0.05$ , partial eta squared = 0.01. An examination of post-hoc tests for males indicated that urban residence was associated with a mean composite couple quality score 0.27, 95% CI [0.02 to 0.51] points higher than rural residence, a statistically significant difference,  $p < 0.05$ . An examination of post-hoc tests for females indicated that urban residence was associated with a mean composite couple quality

score 0.29, 95% CI [0.09 to 0.49] points higher than rural residence, a statistically significant difference,  $p < 0.01$ . On average, residents in an urban area reported higher couple quality than those in a rural area, for both males and females.

Table 5

*Two-Way ANOVA for Couple Quality at Time 1 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
	Intercept	22019.897	1	22019.89	9253.17	0.00	0.86
	Rural/Urban	19.08	1	19.08	8.02	0.01**	0.01
Female	Income	132.81	6	22.14	9.30	0.00***	0.04
	Interaction	16.27	6	2.71	1.14	0.34	0.00
	Error	3705.21	1557	2.38			
	Source	SS	df	MS	F	Sig.	Partial Eta Squared
	Intercept	14602.51	1	14602.51	6956.80	0.00	0.90
	Rural/Urban	9.78	1	9.78	4.66	0.03*	0.01
Male	Income	47.02	6	7.84	3.73	0.00***	0.03
	Interaction	7.63	6	1.27	0.61	0.73	0.01
	Error	1601.56	763	2.10			

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .

The effect of income on couple quality was also found to be significant for both females,  $F(6, 1557) = 9.30$ ,  $p < 0.01$ , partial eta squared = 0.04, and for males,  $F(6, 763) = 3.73$ ,  $p < 0.01$ , partial eta squared = 0.03. Examination of post-hoc tests for males indicated that an income of \$75,000-100,000 was associated with couple quality scores 0.89, 95% CI [0.10, 1.68],  $p < 0.05$ , points higher than an income of \$7,000-13,999, 0.88, 95% CI [0.14, 1.61],  $p < 0.01$ , points higher than an income of \$14,000-24,999, and 0.71, 95% CI [0.00, 1.43],  $p = 0.05$ , points higher

than an income of \$25,000-39,000, all statistically significant at the 0.05 level. Examination of post-hoc tests for females indicated that an income of less than \$7,000 was associated with couple quality scores 0.44, 95% CI [-0.88, 0.00],  $p < 0.05$ , points lower than an income of \$7,000-13,999, 0.41, 95% CI [-0.81, -0.01],  $p < 0.05$ , points lower than an income of \$25,000-39,000, and 0.72, 95% CI [-1.44, 0.00],  $p < 0.05$ , points lower than an income of \$100.00 or more, all statistically significant at the 0.05 level. Additionally, females with an income of less than \$7,000 scored 0.74, 95% CI [-1.11, -0.37] points lower than those with an income of \$40,000-74,999 and 0.89, 95% CI [-1.43, -0.36] points lower than those with an income of \$75,000-100,000, both statistically significant at the 0.001 level. An income, for females, of \$14,000-24,999 was associated with couple quality scores 0.57, CI% [-1.02, -0.11] points lower than an income of \$40,000-74,999 and 0.71, 95% CI [-1.31, -.012] points lower than an income of \$75,000-100,000, both statistically significant at the 0.01 level. On average, men of higher income were more likely to report statistically significantly higher couple quality compared to their lower income counterparts, while women of lower income were more likely to report statistically significantly lower couple quality than their higher income counterparts.

No significant interaction effects were found either for females,  $F(6, 1557) = 1.14, p = 0.34$ , partial eta squared = 0.01, or for males,  $F(6, 763) = 0.61, p = 0.73$ , partial eta squared = 0.01. An analysis of effect revealed that rural/urban residence and income accounted for 3% of the variability in level of couple quality for males and 4% for females, a small effect.

***Positive Interactions.*** To avoid confounding effects for coupled participants, two separate (male and female) two-way analyses of variance (ANOVA) examined the possible



effect of rural/urban residence and income on positive interactions (Table 6). The effect of rural/urban residence on positive interactions was not found to be significant for females,  $F(1, 1552) = 1.37, p = 0.24$ , partial eta squared = 0.00, or for males,  $F(1, 763) = 0.34, p = 0.56$ , partial eta squared = 0.00. The effect of income on positive interactions was also not found to be significant for either females,  $F(6, 1552) = 1.70, p = 0.12$ , partial eta squared = 0.01, or for males,  $F(6, 763) = 0.72, p = 0.64$ , partial eta squared = 0.01. No significant interaction effects were found for females,  $F(6, 1552) = 0.28, p = 0.95$ , partial eta squared = 0.00, or for males,  $F(6, 763) = 0.76, p = 0.58$ , partial eta squared = 0.01. Baseline levels of positive interaction did not differ by residence or by income.

Table 6

*Two-Way ANOVA for Positive Interactions at Time 1 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Female	Intercept	7257.75	1	7257.75	16042.00	0.00	0.91
	Rural/Urban	0.62	1	0.62	1.37	0.24	0.00
	Income	4.62	6	0.77	1.70	0.12	0.01
	Interaction	0.76	6	0.13	0.28	0.95	0.00
	Error	702.16	1552	0.45			
	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Male	Intercept	4612.35	1	4612.35	12162.09	0.00	0.94
	Rural/Urban	0.13	1	0.13	0.34	0.56	0.00
	Income	1.64	6	0.27	0.72	0.64	0.01
	Interaction	1.79	6	0.30	0.79	0.58	0.01

Error	289.36	763	0.38
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**Negative Interactions.** To avoid confounding effects for coupled participants, two separate (male and female) two-way analyses of variance (ANOVA) examined the possible effect of rural/urban residence and income on negative interactions (Table 7). The effect of rural/urban residence on negative interactions was not found to be significant for females,  $F(1, 1550) = 0.08, p = 0.78$ , partial eta squared = 0.00, or for males,  $F(1, 763) = 2.30, p = 0.13$ , partial eta squared = 0.00. The effect of income on negative interactions was also not found to be significant for females,  $F(6, 1550) = 1.27, p = 0.27$ , partial eta squared = 0.01, or for males,  $F(6, 763) = 0.27, p = 0.09$ , partial eta squared = 0.01. No significant interaction effects were found either for females,  $F(6, 1550) = 0.73, p = 0.64$ , partial eta squared = 0.00, or for males,  $F(6, 763) = 1.00, p = 0.42$ , partial eta squared = 0.01. The level of negative interactions did not differ at baseline by residence or income.

Table 7

*Two-Way ANOVA for Negative Interactions at Time 1 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
	Intercept	3146.92	1	3146.92	12473.96	0.00	0.89
	Rural/Urban	0.02	1	0.02	0.08	0.78	0.00
Female	Income	1.92	6	0.32	1.27	0.27	0.01
	Interaction	1.11	6	0.18	0.73	0.62	0.00
	Error	391.03	1550	0.25			

  

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
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	Intercept	1843.64	1	1843.64	12425.22	0.00	0.94
	Rural/Urban	0.34	1	0.34	2.30	0.13	0.00
Male	Income	1.65	6	0.27	1.85	0.09	0.01
	Interaction	0.89	6	0.15	1.00	0.42	0.01
	Error	113.21	763	0.15			

**Research Question 2: Do mean differences in change in measures of relationship health exist between participants over time, based upon rural or urban residence and income?**

*Couple Quality.* Two-way analyses of variance (ANOVA) compared the effects of rural/urban residence and income on couple quality at Time 2, controlling for Time 1 scores and run separately by gender (Table 8). The effect of rural/urban residence on couple quality was not found to be significant for either females,  $F(1, 1046) = 0.96, p = 0.33$ , partial eta squared = 0.00, or for males,  $F(1, 508) = 0.38, p = 0.54$ , partial eta squared = 0.00. The effect of income on couple quality was also not found to be significant for either females,  $F(6, 1046) = 1.35, p = 0.23$ , partial eta squared = 0.01, or for males,  $F(6, 508) = 1.05, p = 0.39$ , partial eta squared = 0.01. No significant interaction effects were found either for females,  $F(6, 1046) = 1.57, p = 0.15$ , partial eta squared = 0.01, or for males,  $F(6, 508) = 0.63, p = 0.71$ , partial eta squared = 0.01. The Time 1 scores for both males and females accounted for 37% and 39%, respectively, of the variance in the Time 2 scores, suggesting that factors present upon entry into the program had more influence over participants' couple quality outcomes over time than either area of residence or income.

Table 8

*Two-Way ANOVA for Couple Quality at Time 2 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Female	Intercept	479.82	1	479.82	348.97	0.00	0.25
	Time 1	905.07	1	905.07	658.26	0.00	0.39
	Rural/Urban	1.33	1	1.33	0.96	0.33	0.00
	Income	11.17	6	1.86	1.35	0.23	0.01
	Interaction	12.96	6	2.16	1.57	0.15	0.01
	Error	1438.18	1046	1.38			
Male	Intercept	241.09	1	241.09	211.94	0.00	0.29
	Time 1	343.89	1	343.89	302.32	0.00	0.37
	Rural/Urban	0.44	1	0.44	0.38	0.54	0.00
	Income	7.16	6	1.19	1.05	0.39	0.01
	Interaction	4.28	6	0.71	0.63	0.71	0.01
	Error	577.85	508	1.14			

**Positive Interactions.** Two-way analyses of variance (ANOVA) examined the possible effects of rural/urban residence and income on positive interactions at Time 2, controlling for Time 1 scores and run separately by gender (Table 9). The effect of rural/urban residence on positive interactions was not found to be significant for either females,  $F(1, 1041) = 1.06$ ,  $p = 0.30$ , partial eta squared = 0.00, or for males,  $F(1, 502) = 0.33$ ,  $p = 0.57$ , partial eta squared = 0.00. The effect of income on positive interactions was also not found to be significant for either females,  $F(6, 1041) = 0.75$ ,  $p = 0.61$ , partial eta squared = 0.00, or for males,  $F(6, 502) = 1.23$ ,

$p = 0.29$ , partial eta squared = 0.01. No significant interaction effects were found for females,  $F(6, 1041) = 1.02$ ,  $p = 0.41$ , partial eta squared = 0.01, or males,  $F(6, 502) = 0.86$ ,  $p = 0.53$ , partial eta squared = 0.01. The Time 1 scores for both males and females accounted for 44% and 45%, respectively, of the variance in the Time 2 scores.

Table 9

*Two-Way ANOVA for Positive Interactions at Time 2 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Female	Intercept	54.27	1	54.27	202.13	0.00	0.16
	Time 1	223.71	1	223.71	833.29	0.00	0.45
	Rural/Urban	0.28	1	0.28	1.06	0.30	0.00
	Income	1.21	6	0.20	0.75	0.61	0.00
	Interaction	1.65	6	0.28	1.02	0.41	0.01
	Error	279.48	1041	0.27			
Male	Intercept	16.76	1	16.76	67.70	0.00	0.12
	Time 1	96.59	1	96.59	390.07	0.00	0.44
	Rural/Urban	0.08	1	0.08	0.33	0.57	0.00
	Income	1.82	6	0.30	1.23	0.29	0.01
	Interaction	1.28	6	0.21	0.86	0.53	0.01
	Error	124.31	502	0.25			

**Negative Interactions.** Two-way analysis of variance (ANOVA) was used to compare the effects of rural/urban residence and income on negative interactions at Time 2, controlling for Time 1 scores and separating analyses by gender. The effect of income on negative interactions

was found to be significant for males,  $F(6, 501) = 3.68, p < 0.01$ , partial eta squared = 0.04, though it was not significant for females,  $F(6, 1036) = 0.73, p = 0.63$ , partial eta squared = 0.00. An examination of post-hoc tests for males indicated that an income of less than \$7,000 was associated with changes in negative interaction scores 0.27, 95% CI [0.06, 0.48],  $p < 0.01$ , points higher than an income of \$14,000-24,999, 0.26, 95% CI [0.05, 1.47],  $p < 0.01$ , points higher than an income of \$25,000-39,000, and 0.23, 95% CI [0.04, 0.42],  $p < 0.01$ , points higher than an income of \$40,000-74,999, all statistically significant at the 0.01 level. Males in the lowest income group showed significantly more change than all other income groups in improvements in negative interactions.

The effect of rural/urban residence on negative interactions was not found to be significant for females,  $F(1, 1039) = 0.55, p = 0.46$ , partial eta squared = 0.00, or males,  $F(1, 501) = 0.99, p = 0.32$ , partial eta squared = 0.00. No significant interaction effects were found for females,  $F(6, 1039) = 0.39, p = 0.89$ , partial eta squared = 0.00, or for males,  $F(6, 501) = 0.98, p = 0.44$ , partial eta squared = 0.01. Though the Time 1 scores for females accounted for 24% of the variance in the Time 2 scores, the Time 1 scores for males accounted for only 13% of the variance, suggesting that other factors might be of greater influence for negative interactions.

Table 10

*Two-Way ANOVA for Negative Interactions at Time 2 with Female and Male Participants by Rural/Urban Residence and Income*

	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Female	Intercept	59.40	1	59.40	353.57	0.00	0.25
	Time 1	55.34	1	55.34	329.37	0.00	0.24
	Rural/Urban	0.09	1	0.09	0.55	0.46	0.00
	Income	0.73	6	0.12	0.73	0.63	0.00
	Interaction	0.39	6	0.07	0.39	0.89	0.00
	Error	174.56	1039	0.17			
	Source	SS	df	MS	F	Sig.	Partial Eta Squared
Male	Intercept	21.34	1	21.34	121.41	0.00	0.20
	Time 1	12.90	1	12.90	73.39	0.00	0.13
	Rural/Urban	0.18	1	0.18	0.99	0.32	0.00
	Income	3.88	6	0.65	3.68	0.00***	0.04
	Interaction	1.03	6	0.17	0.98	0.44	0.01
	Error	88.06	501	0.18			

\*\*\* p < 0.001.

## **Discussion**

This study examined the possible differential effects of rural or urban residence and income on individuals' couple relationship outcomes measured as couple quality, positive interactions, and negative interactions related to participation in a couple relationship education program. Specifically, this study examined relationship outcomes both at baseline and at post-test to capture a better picture of possible factors involved in change. Results of this study indicated that, at baseline, urban individuals reported statistically significantly higher scores of couple quality than rural individuals. Additionally, statistically significantly higher couple quality was reported by higher income individuals than lower income individuals. Baseline levels of positive and negative interactions did not differ by residence or income. At Time 2, statistically significant effects of income were found for males' negative interactions, with lower income males reporting statistically significantly more change than other income groups. No other statistically significant effects were found at Time 2.

### ***Outcome Differences at Baseline.***

In this study, results for both men and women revealed that rural and urban residents were statistically significantly different at baseline on the measure of couple quality, with urban individuals reporting statistically significantly higher for couple quality at the start of the program than rural. This result is supported by research suggesting that rural individuals face greater challenges overall than urban individuals, including mental health issues and drug use



(Foxhall, 2000; Roberts, Doogan, Kurti, et al., 2016; Shaw, Grant, Barbosa-Leiker, Fleming, Henley, & Graham, 2015), which can negatively impact couple quality.

Statistically significant differences also existed among levels of income at baseline. Higher couple quality was more likely reported by higher income men than lower income men. Lower income women were more likely to report statistically significantly lower couple quality than higher income women. These results are consistent with research indicating that the negative effects of financial strain, including increasing irritability, depression, and psychological distress, contribute to decline in marital quality (Conger & Elder, 1994; Freeman, Carlson, & Sperry, 1993).

Neither positive nor negative interactions were statistically significantly different at baseline, for rural/urban residence or income. For males and females, anywhere from 89% to 94% of the variability of their positive and negative interactions accounted for by factors other than income or place of residence. This result supports previous research, such as Fein's 2004 study, which reported statistically significant correlations between income and predictors of marital quality, also explaining little of the variance. Fein further suggested that, though income has an effect, it is a relatively weak correlation that might be easily displaced by other factors, including external stressors, social support, and cultural norms. The correlations conducted at the beginning of the study indicated that there could be a relationship between the predictor and outcome variables, a prediction supported in part by the results of the analyses of variance.

### ***Outcome Differences at Time 2.***

Rural/urban residence revealed no statistically significant effects upon couple quality at

Time 2, accounting for only 1% of the variability in couple quality scores. This could indicate that, because there is no indicated difference in change between rural and urban individuals following participation in the program, participation in the CRE program benefitted both rural and urban individuals similarly. Such results support findings indicating that at-risk populations are likely to benefit from CRE programs (Adler-Baeder, et al., 2004; Adler-Baeder, Bradford, Skuban, Lucier-Greer, Ketring, & Smith, 2014; Adler-Baeder et al., 2010; Carlson, Barden, Daire, & Greene, 2014; Conger, Rueter, & Elder, 1999; Williamson, Altman, Hsueh, & Bradbury, 2016). The rural population in this study, as shown in Table 1, is more disadvantaged in relation to education, employment, and income compared with urban peers.

For couple quality and income at Time 2, statistically significant differences in change were no longer visible for either men or women after accounting for Time 1 scores, suggesting that CRE programming had a mitigating effect upon the effects of income for participants regarding couple quality. Such a result suggests that, over time, lower and higher income participants benefitted equally from CRE participation.

Just as at baseline, there were no statistically significant difference in change between rural/urban residence and income for positive interactions. This result suggests that participants' positive interactions seem affected equally across time, indicating that neither rural nor urban participants seem to have benefited more from CRE programming. This result was mirrored in examinations of income, which also indicated no statistically significant difference in change between baseline and Time 2.

Differences in change in negative interactions were statistically significantly different for

men at Time 2 regarding income, with lower income men indicating the most change. For men, rural/urban residence and women across both predictors, no additional statistically significant effects were found. Contrary to the other outcome variables, where Time 1 results comprised a large portion of the effect upon the variability of the outcomes, for male negative interaction scores at Time 2, baseline scores accounted for only 13% of the variability of scores. This result suggests that other factors matter more in relation to possible effects upon change in negative interactions than rural/urban residence or income might. Additionally, this result could indicate that males have more influenceable traits and that their outcomes are not determined upon their entry into the program, but by factors such as external stress (Fein, 2004) and possibly, CRE participation.

### **Implications**

Based on the results of this study, the overall effects of rural/urban residence and income on CRE participant outcomes are small. Results at both baseline and Time 2 indicate that a large proportion of the predictors of change exist outside of the variables measured in this study, an encouraging result for CRE programming used in this study. CRE is potentially effective in similar ways for different populations. Though rurality itself was not considered a strong indicator of relationship quality in this study, both the lack of recent literature regarding couple relationship quality in rural areas and the large proportion of rural individuals in the United States (20%), the state of Alabama (41%), and this study (49%) suggest that further exploration of the population is recommended. Most factors that contribute to the overall definition of rurality, including aspects of culture, economy, and ethnic heritage, were not included in this

study.

### **Limitations and Future Directions**

This study examined individual participant responses and outcomes, though approximately 33% of participants attended classes with their spouse. Future research should consider the presence of couples in the design of the study, perhaps incorporating them as a focus in the design. Additionally, income was measured as an interval variable, resulting in seven groupings of participants. Grouping the results into two or three groups, such as “high,” “middle,” and “low” income, could yield more statistically significant results.

Participant data were collected using self-reported measures, which increases the possibility that individuals may answer according to what they deem to be more socially desirable. The addition of partner report measures would enable researchers to better gauge the validity of self-report measures. This study measured only three indicators of couple relationship health, while numerous other factors that impact relationship wellness, such as sexual behaviors, physical exercise, and sleep patterns (Al-Barrak, Sheperdycky, & Kryger, 2003; Kahn, Williamson, & Steven, 1991; Sprecher & Cate, 2004), were not included. Future research would benefit from expanding exploration to the other health behaviors that potentially effect relationship health. Additionally, the participants’ surveys collected data at a single time point, as opposed to using retrospective questions. This might have increased the likelihood that participants unknowingly over or underestimated their own knowledge at baseline or Time 2, decreasing the accuracy of a comparison across time points.

This study explored two (*Care* and *Manage*) of the seven NERMEM principles through

the measures of positive (*Care*) and negative (*Manage*) interactions. The relationship between the remaining five (*Choose, Care for Self, Know, Share, and Connect*) principles and both rural/urban residence and income should be taken into consideration for future research. Though the current study explored aspects of relationship health, to retain simplicity, it did not take into account other details about the relationships themselves, for example, number of times married or number of children in the home. The current study also did not include age at marriage or length of relationship, which might be related to several other predictors of relationship health, including education levels, income, marital interactions, and overall couple quality. Additionally, this study did not include control groups, based upon the original data collection. Future studies should endeavor to include the use of control groups to obtain a more accurate representation of change and comparison between groups.

A more multi-faceted definition of rurality, including culture, economy, ethnic heritage, and isolation should be included in future research. There is a definite need for further research into coupled rural relationships, considering that the majority of research examining couple quality and interactions among rural families is several decades old. The current study, though there were few differences in change between rural and urban population reported at Time 2, confirmed that rural participants began the CRE program reporting lower levels of couple quality than their urban peers, a significant finding. Though rural participants have doubtless been included in numerous studies, few in recent years have examined them as a unique population. Research is critical to the development or choice of programming, and evaluation of programs helps determine efficacy and enables the continuous improvement of programs based upon the

outcomes of participants (Higginbotham, Henderson, & Adler-Baeder, 2007). The current study would suggest that further research dedicated to customization for the rural population is not necessary at this time, as curricula utilizing the NERMEM principles seem to be largely equally effective across both rural and urban populations, as well as across variability of income. However, understanding the processes and differences in rural and urban relationships should be a focus of future research.

## **Conclusions**

This exploratory study was a step towards updating our understanding of the possible differences between modern rural and urban populations. This study supports the idea that differences exist between the two populations but that the groups are more alike than they are different with respect to their starting points and experiences in CRE programs. This result benefits CRE developers as it indicates that both rural and urban populations are likely to derive similar benefit from the same programming. However, continued research into the differences between rural and urban populations, considering such differences as income, education, and culture, is essential to updating the literature to increase understanding about modern life and relationships in the differing locales.

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## Appendix A

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### COUPLE/MARITAL QUALITY (From Norton, 1983)

Indicate your level of agreement with the following statements:

1=very strongly disagree

7=very strongly agree

we have a good marriage/relationship	1	2	3	4	5	6	7
my relationship with my spouse/significant other is very stable	1	2	3	4	5	6	7
our marriage/relationship is strong	1	2	3	4	5	6	7
my relationship with my spouse/significant other makes me happy	1	2	3	4	5	6	7
I feel like a part of a team with my spouse/significant other	1	2	3	4	5	6	7

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### POSITIVE INTERACTION SCALE (Huston & Vangelisti, 1991)

On average, how often do you:

1=Never    2=Sometime, but not every day    3=Once or twice a day    4=Often throughout the day

Compliment your spouse/significant other	1	2	3	4
Make your spouse/significant other laugh	1	2	3	4
Say "I love you" to your spouse/significant other	1	2	3	4
Do something nice for your spouse/significant other	1	2	3	4
Talk about the day's events with your spouse/significant other	1	2	3	4
Initiate physical affection (ex:kiss,hug) with your spouse/significant other	1	2	3	4
Share emotions/feelings/problems with your spouse/significant other	1	2	3	4
Initiate sex with your spouse/significant other	1	2	3	4

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### NEGATIVE INTERACTION SCALE (Huston & Vangelisti, 1991)

Indicate your answer:

1=Never

2=Sometime, but not every day

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3=Once or twice a day  
4=Often throughout the day

Seem bored or uninterested with your spouse/significant other	1	2	3	4
Dominate the conversation with your spouse/significant other	1	2	3	4
Show anger or impatience towards your spouse/significant other	1	2	3	4
Criticize or complain to your spouse/significant other	1	2	3	4
Turn down or avoid sexual advances from your spouse/significant other	1	2	3	4
Fail to do something that your spouse/significant other asks	1	2	3	4
Do things that annoy (e.g., habits) your spouse/significant other	1	2	3	4

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