Influences of stress, individual and family processes on rural low-income children’s internalizing and externalizing behaviors

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Influences of stress, individual and family processes on rural low-income children’s internalizing and externalizing behaviors

by

Juan Bao

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Human Development and Family Studies

Program of Study Committee:
Kimberly A. Greder, Major Professor
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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this dissertation. The Graduate College will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University
Ames, Iowa
2019

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DEDICATION

I dedicate this dissertation to my family, and to families who make this
dissertation possible.
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Contextual stress (e.g., economic pressure, acculturative stress) places rural children at risk for adverse outcomes. Prior studies using rural samples to understand the stress processes at the individual and family levels have been predominantly dyadic in focus. Given family members are interdependent, it is interesting to explore whether family variables of particular interest on the family process as a whole can help explain the stress process. Guided by the family stress model, this dissertation used structural equation modeling to explore the relationships among contextual stress (i.e., economic pressure, acculturative stress), individual process (e.g., maternal depressive symptoms), family process (e.g., family rituals) and child behavior outcomes among rural low-income families in general as well as rural low-income families of Latinx origin. Data were collected from rural low-income mothers who participated in a multi-state project Rural Families Speak about Health (RFSH) and an outgrowth project focusing on rural Latinx immigrant families in the Midwest.

Overall, the findings confirmed the significant roles of individual and family processes in the relation between contextual stress and rural low-income child behavior outcomes. In particular, the findings provided empirical evidence, albeit preliminary, to support the extension and elaboration of the FSM in ways that include family rituals as a mediator and acculturative stress as a contextual stressor specific to culture. In the first study, economic pressure was associated with more maternal depressive symptoms, which in turn was related to weaker co-parenting alliance. Family rituals might serve as a mediator between co-parenting alliance and child externalizing behaviors for rural low-income families in general. The economic stress process did not vary by families with
different age groups of children (i.e., younger vs. older children). In the second study, maternal depressive symptoms, as influenced by economic pressure and acculturative stress, was associated with lower levels of parenting competence, which in turn was related to less meaning ascribed in family rituals and heightened risk for child externalizing behaviors for low-income Latinx immigrant families in the rural Midwest. Implications, including recommendations for future research and suggestions for practice and policy were also discussed.
CHAPTER 1. INTRODUCTION

General Introduction

Problem behaviors among children are of great concern to both families and the public (Gupta, Mongia, & Garg, 2017), and are often categorized as internalizing or externalizing behaviors (Achenbach & Edelbrock, 1979). Internalizing behaviors are behaviors directed towards oneself, are negative and harmful (Burlaka, Bermann, & Graham-Bermann, 2015), and include symptoms such as emotional reactivity, anxiety, depression, somatic complaints, and social withdrawal (Achenbach, 1991). Externalizing behaviors are behaviors that harm others (Burlaka et al., 2015) and include aggression, rule-breaking, and attention problems (Achenbach, 1991). In the United States, about 13.0 - 20.0% of children annually exhibit some degree of internalizing or externalizing behaviors (Center for Disease Control and Prevention, 2016). These problem behaviors may occur among children of any gender, age, racial/ethnic background, and region (CDC, 2016). Although similar percentages of children with diagnosed mental, behavioral, or developmental disorder (MBDD) were found for small rural (18.6%) and urban (15.2%) areas (CDC, 2018), the greater shortage of professionals trained in addressing childhood MBDDs, fewer available evidence-based intervention programs (Kelleher & Gardner, 2017) and conservative attitudes toward seeking mental healthcare in rural areas would place rural children at high risk for behavior problems (Lenardson et al., 2010).
Early onset of problem behaviors among children may significantly affect later development (Alexander, Entwisle, & Dauber, 1993; Turney & McLanahan, 2015), which in turn can lead to reduced quality of life in adulthood (Fergusson, John Horwood, & Ridder, 2005; Narusyte, Ropponen, Alexanderson, & Svedberg, 2017), and long-term developmental and health risks (Jokela, Ferrie, & Kivimäki, 2009). An estimated $247 billion is spent annually in the U.S. on services related to mental health and behavior problems among children (CDC, 2016). Thus, it is important to identify which factors would affect children’s behaviors and how children’s behaviors are affected by these factors. Such research would have important implications for families, policymakers and family practitioners to enhance positive and healthy child development.

As ecological systems theory has posited, children develop within a complex system of relationships that are influenced by multiple environments (Bronfenbrenner, 1992). Individuals and families are at the core of the ecological system (Cancel-Tirado, Greder, & Wiles, 2018). Prior studies have demonstrated that acute and chronic stress within the family were associated with negative child outcomes, including problem behaviors (Masarik & Conger, 2017; Neppl, Senia, & Donnellan, 2016; Robila & Krishnakumar, 2006). Financial strain (i.e., economic pressure) experienced by families is one of the most critical stressors that negatively affects child outcomes (Ahmed & Kingsolver, 2005). Additionally, compared to urban children, rural children have a higher chance of living with families under economic pressure given that they are more likely to live in households that have low or very low-
incomes (USDA Economic Research Service, 2017b). For example, more than half (53.3%) of U.S. rural children under six years of age lived in low-income households in 2016, which was about ten percent higher than their urban peers (42.5%) (USDA Economic Research Service, 2017a). Furthermore, rural families are at higher risk of job insecurity, persistent low economic well-being (Johnson, Showalter, Klein, & Lester, 2014; Newland, Crnic, Cox, Mills-Koonce, & Family Life Project Key Investigators, 2013), and experience less access to resources and services (Vandergriff-Avery, Anderson, & Braun, 2004) than their urban counterparts, which in turn can lead to increased financial stress or economic pressure.

The family stress model (FSM; Conger & Elder Jr., 1994) has been widely used as a guiding framework to understand the family stress process and its associated impacts on child behaviors (Jeon & Neppl, 2016; Landers-Potts et al., 2015; Masarik & Conger, 2017; Neppl, Senia, & Donnellan, 2016; Ponnet, 2014; White, Liu, Nair, & Tein, 2015). Although economic stress is the primary stressor in the FSM, various environmental stressors can also be applied to this model (Masarik & Conger, 2017). As posited by the FSM, environmental stress increases parents/caregivers’ risk of emotional distress and strained family relations, which in turn negatively affects parenting abilities and practices which can negatively affect child outcomes (Conger et al., 2002; Conger & Elder Jr, 1994).

An extensive body of research based on the FSM, and rural or national samples, has demonstrated the detrimental impacts of economic disadvantage and/or economic pressure on child outcomes (Conger et al., 1992, 1993, 2002, 2010; Neppl, Senia, & Donnellan, 2016;
Newland, Crnic, Cox, Mills-Koonce, & Family Life Project Key Investigators, 2013; Robila & Krishnakumar, 2006; Roper, George, Nelson, Yorgason, & Poulsen, 2016). However, studies of family process as an indirect effect of economic pressure on child behaviors are predominantly based on the interparental dyad and/or parent-child dyad (Conger et al., 2002; Roper et al., 2016), and seldom moved beyond the dyadic focus. Family is viewed as an emotional unit and is interdependent with multiple systems including individual family members, interparental or caregiver relationship, parent-child relationship, sibling relationship, nuclear and extended family relationship, and the family’s overall relationship (Kerr, 2000). It is important to recognize processes or mechanisms within families that affect child outcomes (Cox & Paley, 2003). Thus, research on the effects of family stress processes on rural child outcomes, including child behaviors, warrants further investigation.

While natural growth tends to continue falling due to aging and lower fertility rates in rural areas, rural population has reversed its loss and even gained a small increase in 2016 - 2017 because of the increasing net migration (USDA Economic Research Service, 2019). In addition, the demographic compositions of many rural communities across the U.S. have changed dramatically over the past three decades, especially in relation to race, ethnicity and socioeconomics (Brown & Schafft, 2011). Specifically, Latinx and American Indians’ migration (e.g., American Indians) have grown in rural America (not in all areas) as families sought affordable living, personal safety, employment, and opportunities to reside near family and friends who previously relocated to rural America (Flores et al., 2011; May et al.,
Based on USDA Economic Research Service report (2019), the annual growth rate of Latinx population in rural areas has remained near 2% and American Indian population’s rate has been between 0.5% and 0.75% since 2012. Despite the stable population growth, economic disparities persist among racial and ethnic groups across America. Latinx as well as African Americans, American Indians and Alaskan Natives experienced far greater economic disparity in 2016, compared to Whites (25.9%, 33.0%, 31.8%, 14.6%, respectively; USDA Economic Research Service, 2017b). Additionally, several rural communities are ill-prepared to meet the needs of their growing Latinx and other ethnically and racially diverse populations (Raffaelli & Wiley, 2013). Furthermore, conflicting cultural values, language limitations, separate social networks, and perceived discrimination (May et al., 2015), can result in Latinx immigrants and other racially/ethnically diverse populations experiencing acculturative stress (Finch & Vega, 2003; May et al., 2015).

Acculturative stress has been described as stress that occurs during the process of adapting to a new culture while continuing to affiliate with one’s culture of origin (Concha, Sanchez, Rojas, Villar, & De La Rosa, 2016). Studies of Latinx immigrant families have found that parental acculturative stress is associated with child internalizing problem behaviors (Leidy et al., 2009), including child anxiety symptoms (Leon, 2014) and child self-esteem, as well as child externalizing problems such as aggression and alcohol and tobacco use (Lorenzo-Blanco et al., 2016). Additionally, acculturative stress has been associated with
decreased family cohesion and functioning (Dillon, De La Rosa, & Ibañez, 2013; Lorenzo-Blanco et al., 2016). However, to date, no studies have considered both economic pressure and Latinx acculturative stress when examining the family stress process and potential impacts on child internalizing and externalizing behaviors among Latinx immigrant families, and in particular among Latinx immigrant families residing in rural, low-income, Midwestern households.

**Purpose**

Guided by the family stress model (FSM), this dissertation was undertaken to examine the relations among contextual stress, individual and family processes, and child behavior outcomes among rural low-income families. Two studies were conducted for this dissertation:

The first study was based on a sample of rural, low-income families across several states, and addressed the following research questions:

1. How does economic pressure affect child behavior outcomes among rural low-income families?
2. Do maternal depressive symptoms, co-parenting alliance and family rituals mediate the relationship between economic pressure and child behavior outcomes?
3. Do these relationships vary by families with children between 18 months - 5 years of age and between 6 - 12 years of age?
The second study was based on a sample of rural, low-income, Latinx immigrant families who resided in a Midwestern state and addressed the following research questions:

1. How does economic pressure, coupled with parental acculturative stress, affect child behavior outcomes among rural, low-income, Latinx immigrant families who reside in the Midwestern communities?

2. Do maternal depressive symptoms, parenting competence, and family rituals mediate the association between economic pressure and child behavior outcomes, and between parental acculturative stress and child behavior outcomes?

Datasets

Data for this dissertation originated from two studies of rural low-income families to examine associations between contextual stressors and behaviors among rural, low-income children. Study one uses data from wave 1 of the *Rural Families Speak about Health* (RFSH) project (http://ruralfamiliesspeak.org/). Wave 1 includes quantitative data collected between 2010 - 2012 during in-person interviews with 444 mothers who had low-incomes and at least one child 12 years of age or younger at the time of the interview, and who lived in rural communities across 13 states. Study two uses data from the *Latinx Family Health Project*, an outgrowth of the RFSH project. This project includes two panels of data collected over multiple time points from first generation Latina immigrant mothers who had low-incomes and at least one child 12 years of age or younger at the time of the first interview, and who resided in five rural communities in a Midwestern state.
Dissertation Organization

The organization of this dissertation followed the manuscript format that includes four chapters.

Chapter 1 provides an overview of the dissertation topic, statement of the problem, conceptual framework, purpose of the dissertation, datasets, and the dissertation structure. Chapter 2 presents the first study which examined the relationships among economic pressure, individual process (maternal depressive symptoms), family processes (co-parenting, family rituals) and child behaviors among rural low-income families across several U.S. states. Structural equation modeling (SEM) with multiple group analyses was conducted.

Chapter 3 presents the second study which tested how economic pressure, coupled with acculturative stress, affected individual processes (maternal mental health, parenting competence), family processes (family rituals), and child behaviors among rural, low-income, Latinx immigrant families in a Midwestern state. SEM was conducted. Finally, Chapter 4 includes a synthesized discussion of the findings derived from the two studies, strengths and limitations of the two studies, and implications for future research, practice, and policy.
CHAPTER 2. FAMILY RITUALS: A POTENTIAL MEDIATOR IN THE RELATIONSHIP BETWEEN ECONOMIC PRESSURE AND PROBLEM BEHAVIORS AMONG RURAL, LOW-INCOME CHILDREN

Modified from a manuscript to be submitted to
Child & Youth Care Forum

Abstract

**Background** Economic disadvantage places rural children at risk for adverse outcomes. Prior studies to understand the stress process in families using rural samples have been predominantly dyadic in focus. Given that family members are interdependent, it is important to investigate whether family variables of particular interest to the whole family process, as opposed to subsystems within the family, would help explain the association between stress and child outcomes. **Objective** This study examined whether family rituals serve as a mediator in the family economic stress process experienced by rural, low-income families. Specifically, this study applied the family stress model (FSM) to investigate the relationships among economic pressure, maternal depressive symptoms, co-parenting alliance, family rituals, and child internalizing and externalizing behaviors among rural, low-income children across multiple states. **Methods** The sample was comprised of rural, low-income mothers residing in seven U.S. states with children from 18 months - 12 years of age (n = 237). Structural equation modelling and multiple group analyses were performed. **Results** Economic pressure may indirectly affect child externalizing behaviors via mothers’
depressive symptoms, co-parenting alliance and family rituals, and such relationships did not vary by families with younger or older children. Conclusions Findings of this study further emphasize the importance of reducing economic pressure among rural low-income families with children. They also expand current knowledge by revealing that family rituals may serve as another mediator in family economic stress process that influences child behaviors. Policies and practices that improve economic well-being, lower maternal depressive symptoms, strengthen co-parenting relationships, and promote the practice of family rituals among rural low-income families may contribute to more positive behavior outcomes among rural, low-income children.

Keywords Rural low-income families • Child behaviors • Economic stress process • Family rituals

Introduction

Economic pressure, an individual’s subjective assessment of economic hardship (Conger et al., 1993), is a salient risk factor for child behavioral problems (Robila & Krishnakumar, 2006). Rural children have a higher chance of living in families that experience economic pressure compared to urban children as rural households are more likely to have low or very low-incomes (USDA Economic Research Service, 2017). In 2016, more than half of U.S. rural young children lived in low-income households (50.9%; 6 - 11 years of age; 53.3%; under 6 years of age), or approximately 10% higher than urban children
Low educational attainment (United States Census Bureau, 2016), little or no job training or employment benefits, low-wage jobs and low-earning self-employment in rural America (Johnson, Showalter, Klein, & Lester, 2014) contribute to high risk of job insecurity and persistent low economic well-being among rural households (Johnson et al., 2014; Newland, Crnic, Cox, Mills-Koonce, & Family Life Project Key Investigators, 2013). Furthermore, rural families often have fewer available resources and support services to address their health and well-being needs (Vandergriff-Avery, Anderson, & Braun, 2004). In addition to these challenges, rural communities are spatially diverse which is reflected by their rural living environments (e.g., geographical size of community, economic conditions) (Bolin et al., 2015). Thus, families’ experiences of living in rural America can be varied (Hoyt, Conger, Valde, & Weihs, 1997).

Despite where families live, acute or chronic economic disadvantages as well as limited services and resources can elevate the level of stress families perceive, as well as compromise children’s development and family functioning (Yoshikawa, Aber, & Beardslee, 2012). Prior studies of children’s behaviors have revealed that early onset of behavior problems among children can significantly affect later development and quality of life in adulthood, thus placing children at greater risk for poor long-term health and well-being (Burlaka, Bermann, & Graham-Bermann, 2015; Fergusson, John Horwood, & Ridder, 2005;
Jokela, Ferrie, & Kivimäki, 2009). Hence, it is important to understand how economic pressure affects behaviors among rural low-income children.

The family stress model (FSM; Conger et al., 2002; Conger & Elder, 1994), developed by Conger and colleagues, is a widely used framework to understand the family economic stress process and its relationship to child outcomes (Masarik & Conger, 2017). The FSM posits that economic difficulties and economic pressure affect individual well-being (e.g., parent’s emotional distress) and family functioning (e.g., marital conflict), which in turn affect child outcomes (Conger et al., 2002; Conger, Conger, & Martin, 2010; Conger & Elder, 1994). An extensive body of research has demonstrated empirical support for the application of the FSM to both rural only samples and national samples that include rural residents (Conger et al., 1992, 1993, 2002, 2010; Neppl, Senia, & Donnellan, 2016; Newland et al., 2013; Robila & Krishnakumar, 2006). However, studies of rural families guided by the family stress model predominantly include an inter-parental dyad (e.g., couples) and/or a parent-child dyad (Conger et al., 2002; Roper et al., 2016), and have seldom moved beyond the dyadic focus. Nevertheless, members of families are emotionally connected and interdependent on multiple levels (Kerr, 2000). Thus, the economic stress process that relates to child outcomes should account for multiple levels - individually as well as the entire family (Cox & Paley, 2003). Identifying potential mediators of the series of mediated pathways between economic pressure and child behavior outcomes may have important
intervention and prevention implications to promote positive child development in rural America.

This study introduced family rituals, a family process variable that indicates family organization and involves a whole family process (Markson & Fiese, 2000), into the economic stress process among rural families and examined the associations with child behavior outcomes. Specifically, this study examined the relations among economic pressure, individual process (maternal depressive symptoms), family processes (co-parenting alliance, family rituals), and internalizing and externalizing behaviors among children in rural low-income families. Prior research suggested the way families practice and engage in rituals may change as a function of child age (Dickstein, 2002). Therefore, this study also examined whether these relations would differ between families who had younger children (18 months - 5 years of age) and families who had older children (6 - 12 years of age).

**Background Literature**

**Economic Pressure and Children's Behaviors**

Economic pressure has been described as the “the day-to-day strains and hassles that unstable economic conditions create for families,” which is referred to as the psychological meaning of economic hardship (Masarik & Conger, 2017). Economic pressure has been argued to play a central and critical role in influencing individual well-being and family functioning (Conger et al., 1993). Studies using rural and national samples have demonstrated negative impacts of economic pressure on both internalizing behaviors (Conger...
et al., 1993, 2002; Robila & Krishnakumar, 2006; Roper et al., 2016) and externalizing behaviors (Conger et al., 1992, 1993, 2002; Neppl et al., 2016; Robila & Krishnakumar, 2006) among a broad age range of children.

In comparison to studies focused on examining the direct effect of economic pressure on children’s behaviors, there has been a large body of research focused on the indirect effects or mediating mechanisms. Yoshikawa and colleagues’ (2012) review of literature identified factors at three levels related to the influence of poverty on children’s mental, emotional and behavioral health: (a) individual factors (e.g., child nutritional intake, parent stress); (b) family factors (e.g., parent-child relationship conflict, parenting behaviors); and (c) institutional factors (e.g., neighborhood danger, low quality classroom). The mediational roles of individual factors and family factors have been identified in a large number of previous studies (Conger et al., 1993, 2002, 2010; Kiernan & Huerta, 2008; Robila & Krishnakumar, 2006). Economic pressure due to inadequate financial resources and unstable economic conditions has been associated with elevated levels of parent or caregiver psychological distress (Robila & Krishnakumar, 2006; Roper et al., 2016). A distressed parent or caregiver may redirect his/her negative mood to the marital relationship or caregiver relationship, resulting in more family relationship conflict, and less warmth and support in joint family responsibilities (Masarik & Conger, 2017). In turn, this could diminish parenting beliefs, competence and positive behaviors (Conger et al., 2002; Leahy-Warren, McCarthy, & Corcoran, 2012), which in turn could ultimately affect child behaviors. In
Robila and Krishnakumar’s (2006) analysis that used a national dataset that included children 5-17 years of age, economic pressure was associated with parents’ higher levels of depression and lower marital quality, which in turn was associated with more harsh parenting (e.g., verbally critical and physical forms of punishment). Children who live in such family environments are more likely to have poor psychological functioning.

Previous studies focused on mediational roles of individual and/or family processes have also considered other factors, such as family culture and context (Masarik & Conger, 2017). For example, in Emmen and colleagues’ (2013) research based on a sample from a group of minority mothers with 5 to 6-year-old children living in the Netherlands, acculturative stress was added when testing the economic disadvantage on mothers’ positive parenting behaviors. The results indicated that low socioeconomic status (SES) was indirectly related to mothers’ positive parenting through maternal depressive symptoms as well as mothers’ acculturation stress. However, factors at the family level beyond the dyadic focus have not yet been explored as mediators in the family stress process.

**Maternal Depression**

Maternal depression is defined as a multifaceted mental illness which causes emotional and physical changes for mothers during childbearing and childrearing years (Clark & Fenichel, 2001). Symptoms of maternal depression include great sadness and frequent crying, withdrawal from loved ones and social isolation, thinking about hurting oneself or the baby, low parenting competence, etc. (CDC, 2018). Factors which can place
women at risk for depression include: stressful life events, personal and family history of depression, lack of social support, life changes (e.g., having a baby), pregnancy, and birth complications (CDC, 2017). As a common public health issue, maternal depression affects mothers, their children as well as entire families.

The link between maternal depression and adverse child outcomes (e.g., internalizing and externalizing behaviors) has been well established (Goodman et al., 2011). Prior studies have suggested that depressed mothers may reduce empathy and emotional responsiveness towards their children (Goodman & Gotlib, 1999), have lower competence in caring for and raising their children (Kiernan & Huerta, 2008), exhibit withdrawn and hostile or inconsistent parenting behaviors (Lovejoy, Graczyk, O’Hare, & Neuman, 2000), and foster a stressful family living environment (Marmorstein, Malone, & Jacono, 2004). As mentioned in a meta-analysis of maternal depression and child psychopathology (Goodman et al., 2011), there were no significant differences in the strength of the relations between maternal depression and child internalizing or externalizing behaviors. However, maternal depression could be associated with child internalizing and externalizing behaviors similarly or differently depending on the factors that contribute to maternal depression (e.g., genetic transmission, contextual stress) and the process links to child behaviors (e.g., patterns of parenting). For example, harsh parenting, a mediator between maternal depression and child behaviors, has been found to be more likely to relate to child externalizing behaviors (Lansford et al., 2010; Patterson, Reid, & Dishion, 1992). Moreover, child developmental stage may influence the
relationship between maternal depression and child behaviors. In a study of food insecurity and behaviors among rural, low-income children, Greder and colleagues (2017) found that maternal depression was a significant mediator for child externalizing behaviors but not for child internalizing behaviors among children 18 months - 5 years of age. However, maternal depression was a significant mediator for both child internalizing and externalizing behaviors among children 6 - 12 years of age.

Co-parenting

Co-parenting refers to the ways parents and/or primary caregivers relate to each other in their shared responsibility of rearing children (Feinberg, 2003). It has been found to strongly link to marital quality (Kwok, Cheng, Chow, & Ling, 2015), marital consensus (Hughes, Gordon, & Gaertner, 2004), marital adjustment (Binds & Gondoli, 2007), and coparents’ overall relationship (McHale, Kuersten-Hogan, & Lauretti, 2001). However, co-parenting also represents a separate and unique relationship within a marriage, which is specifically with parenthood and child rearing (Weissman & Cohen, 1985). Thus, as a key construct in the marital relationship, co-parenting relationship has also been used to explain the discrepant evidence between general marital conflict and child behavior problems (Weissman & Cohen, 1985).

Studies have shown that depression can play an important role in a co-parenting relationship (Hughes et al., 2004; Williams, 2018). Parents who are depressed may have limited ability to express and provide emotional support and engage in productive resolution
of childrearing differences (Belsky & Hsieh, 1998; Feinberg, 2003). However, the association between depression and the co-parenting relationship may differ by paternal and maternal perceptions. For example, in their cross-sectional study of high socioeconomic White families in a medium-sized city who had children 11 - 16 years of age, Hughes and colleagues (2004) found that mother-reported depression was a significant predictor for both mother-reported and father-report parenting alliance after controlling for marital consensus and efficacy. However, father-reported depression was not predictive of mother-reported or father-reported parenting alliance. Williams (2018) conducted a longitudinal study of low socio-economic families in urban areas, and who had children 1 - 5 years of age, and found that depression experienced earlier in life was linked to negative co-parenting later. Additionally, fathers’ depression was associated with mothers’ lower levels of cooperative co-parenting whereas mothers’ depression was not associated with fathers’ perceptions of co-parenting. The different findings of these two studies are attributed to differences in samples and study designs, as well as different perceptions of roles that women or mothers play in families. For the mothers who have high socioeconomic status, they may “…take the lead in parenting and is the one who sets the climates and detects family problems” (Hughes et al., 2004, p. 512), while mothers who have low socioeconomic status, “…continue to provide emotion work for family members, even during periods of their own illness” (Gove, 1984; Williams, 2018, p. 264).
Evidence of the association between co-parenting relationships and child outcomes has been well demonstrated in prior studies. For example, a supportive and coordinated co-parenting relationship significantly relates to positive child adjustment (Weissman & Cohen, 1985), teacher-report of child peer acceptance, social cognition and child-report of social competence (Lam, Tam, Chung, & Li, 2018), and fewer parent-report of child behavioral problems (Choi, Parra, & Jiang, 2019). In addition, fathers’ reports of supportive co-parenting relationships indirectly relate to child academic competence and internalizing behaviors via family interaction quality and self-regulation, and mothers’ reports of supportive co-parenting relationships indirectly relate to child academic competence, internalizing behaviors and externalizing behaviors via self-regulation (Brody & Flor, 1996). In contrast, negative co-parenting relationships (e.g., hostile–withdrawn, conflict) significantly relate to parent-report of child anxiety, depression and delinquency (Fainsilber Katz & Low, 2004) and parent-report of child behavioral difficulties (Bearss & Eyberg, 1998; Zemp, Johnson, & Bodenmann, 2018).

**Family Rituals**

Family rituals are repeated practices involving two or more family members with the features of symbolic communication, time commitment and continuity across generations, which can be embedded in several family settings (e.g., dinnertime, weekends, annual celebrations) (Spagnola & Fiese, 2007). As a powerful behavior organizer within the family system (Fiese, 1992), family rituals not only provide information about “what families do”
but also “how families interpret their practices” (Fiese, Hooker, Kotary, & Schwagler, 1993). As proposed by Fiese (1992), family rituals can be identified through two discrete dimensions: family ritual routine and family ritual meaning. The routine dimension involves “the assignment of roles and routine practices” while the meaning dimension involves “expectations for attendance, how important the act is, the symbolic significance of the act, and a commitment to continue the practice into the future and to the next generation” (Fiese & Tomcho, 2001). Therefore, rituals can transmit the beliefs and values of the family, provide a sense of stability, identity, and a means of socialization for family members through repeated family activities (Fiese et al., 2002; Fiese, Foley, & Spagnola, 2006; Schuck & Bucy, 1997). Moreover, family rituals can protect children from some risks during family transition and adversity (i.e., divorce, poverty). However, family transitions and adversity can also place challenges for the practice of family rituals (Fiese, 2006).

Family rituals are particularly important when children are young as this is a time when roles and responsibilities are being defined in families (Fiese et al., 1993), and the repeated meaningful transactions that occur during rituals would promote parenting efficacy and positive family functioning (Spagnola & Fiese, 2007). Family rituals through shared activities are also important to foster a supportive and cohesive family environment in later childhood (e.g., adolescence) when children’s autonomy develops (Barber & Schluterman, 2008; Crespo, Kielpikowski, Pryor, & Jose, 2011). However, as children age, they may also become involved in peer-based routines or rituals (Fiese et al., 2002) to meet their
developmental needs. As Eaker and Walters (2002) suggested, the experience of family rituals may differ by child developmental age, especially when rituals do not well reflect the changing needs of the children.

Empirical studies of family rituals have demonstrated that the presence of family rituals can serve as a protective factor for individual and family well-being, and the degree to which rituals are important may differ by parent gender and the ritual dimension. For example, Markson and Fiese (2000) found mothers’ reports of family ritual meaning interacted with child asthma to affect child anxiety. However, fathers’ reports of family ritual routines were negatively associated with child anxiety. Fiese and Tomcho (2001) examined the relationship between family rituals embedded in religious holidays and marital well-being. They found husbands’ reports of meaning of religious holiday rituals were more closely linked to martial satisfaction than wives’ reports of routines in religious holiday rituals. Crespo and colleagues (2011) assessed parents’ reports of family ritual meaning situated at dinnertime and annual celebrations and found family ritual meaning indirectly linked to children’s reports of well-being through parents’ reports of family cohesion and children’s reports of family cohesion. In two studies, Bennett, Wolin, and Reiss (1988a, b) demonstrated there were fewer behavior problems among children in families that intentionally planned and implemented family rituals compared to families who did not intentionally plan and implement family rituals.
Theoretical Framework

This study was guided by the family stress model (FSM; Conger & Elder, 1994), a series of mediated associations among economic hardship, economic stress, parents/caregivers’ mood, interparental relationship, parenting practices and child adjustment. The FSM (Conger et al., 2002; Conger & Elder, 1994) posits economic hardship leads to economic stress among parents/caregivers, which in turn elevates their risk for emotional distress. Distressed parents/caregivers may compromise their parenting ability and positive parenting practices, which in turn impact child outcomes (e.g., emotions, behaviors). Parents/caregivers’ emotional distress can also indirectly affect parenting ability and practices through interparental relationships (e.g., marital conflict).

The family economic stress process described in the FSM has never been moved beyond the dyadic focus. However, family is an emotional unit and is interdependent at multiple levels (e.g., individual through the whole family) (Kerr, 2000). It is plausible to use the FSM to understand how economic stress is associated with child behaviors through a process that involves multiple interactions within the family.

Current Study

Guided by the FSM and previous literature, this study examined the relationships among economic pressure, maternal depressive symptoms, co-parenting alliance, family rituals and child behaviors among low-income families in rural America. The conceptual
model with the hypothesized path directions was depicted in Figure 1. The following hypotheses were tested.

First, we hypothesized economic pressure would be positively associated with depressive symptoms among mothers. Second, we hypothesized that maternal depressive symptoms would be negatively associated with alliance between co-parents/primary caregivers. Third, we hypothesized that disrupted co-parenting relationships would spill over to the whole family, which in turn would be associated with reduced or loss of family rituals. Fourth, we hypothesized that family rituals would be negatively associated with child internalizing and externalizing behaviors. Fifth, we hypothesized that maternal depressive symptoms would be directly and positively associated with child internalizing and externalizing behaviors. However, co-parenting alliance would be directly and negatively associated with child internalizing and externalizing behaviors. Last, we hypothesized that the relationships among economic pressure, co-parenting alliance, family rituals and child internalizing and externalizing behaviors would vary by families who had younger focal children (18 months - 5 years of age) and families who had older focal children (6 - 12 years of age).

**Methods**

**Data and Sample**

This study used cross-sectional data from a multi-state USDA Hatch funded project entitled, “Interactions of Individual, Family, Community, and Policy Contexts on the Mental
and Physical Health of Diverse Rural Low-Income Families,” commonly referred to as *Rural Families Speak about Health* (RFSH). Four-hundred and forty-four low-income mothers who resided in rural communities across 13 states (CA, HI, IL, IA, KY, MA, NE, NH, NC, SD, TN, TX, WA) participated in this project between 2011 - 2012. To participate, mothers had to meet the following selection criteria: (1) be 18 years of age or older, (2) have at least one child under 13 years of age who lived with them 50% or more of the time, (3) have annual household incomes at or below 185% of the federal poverty level, and (4) reside in rural communities designated with an urban influence code (UIC) between 6-10. However, participants who lived in Hawaii or California resided in remote rural areas of counties classified as having an UIC of 2. An UIC is based on “a classification scheme that distinguishes metropolitan counties by population size of their metro area, and nonmetropolitan counties by size of the largest city or town and proximity to metro and micropolitan areas” (USDA ERS - Urban Influence Codes, n.d.). The UIC classification scheme includes a range of 1 to 12, with higher numbers indicating greater rurality. For example, counties that were determined to be “Noncore adjacent to a small metro with town of at least 2,500 residents” were classified as an UIC of 6. Counties that were “Noncore adjacent to micro area and does not contain a town of at least 2,500 residents” were classified as an UIC of 10 (USDA ERS - Urban Influence Codes, n.d.).

The sample size for the current study was reduced to \( n = 237 \) due to requirements of measures used in this study. First, the Child Behavior Checklist assesses behaviors of
children who are between 18 months and 18 years of age. Thus, 55 participants whose children who were younger than 18 months of age were not included in the study. Second, 110 participants who reported that they did not have a co-parent were not included in the sample. Third, 42 participants across six states were excluded because there were not at least 15 participants in each of these states which was the minimum number of participants per state required in this study to adjust for non-independence within each state (Bryk & Raudenbush, 1992).

The average age of mothers and of the randomly selected focal children in this study was 32.52 years ($SD = 8.39$), and 6.35 years ($SD = 3.27$), respectively. Approximately half ($n = 123; 51.9\%$) of the focal children were boys. The majority ($n = 187; 81.3\%$) of mothers were married or had a romantic partner. In regards to formal educational attainment, about two-thirds of mothers ($n = 160; 67.8\%$) earned a high school diploma, GED, or had fewer years of formal education. In terms of race, the majority of mothers identified as White ($n = 161; 74.5\%$), followed by mothers who identified as Black ($n = 6; 2.8\%$), American Indian or Alaskan Native ($n = 5; 2.3\%$), and Asian ($n = 2; .9\%$). About 1 out of 6 mothers ($n = 35; 16.2\%) identified their race as “Other”, and 3.2\% of mothers ($n = 7$) identified themselves as being of “more than one race”. Over one third ($n = 89; 37.7\%$) of mothers identified as Latina. Mothers all have co-parents, and over half ($n = 127; 53.6\%$) of the mothers’ co-parents were spouses, and a little over one-fourth ($n = 60; 25.3\%$) were romantic partners. Older children ($n = 4; 1.6\%$), grandparents ($n = 31; 13.0\%$), other relatives ($n = 7; 2.9\%$), and
non-relatives \((n = 8; 3.4\%)\) were also identified as co-parents. A little under half \((n = 104; 48.1\%)\) of the mothers reported annual household incomes less than $20,000. Over a third \((n = 85; 39.3\%)\) of mothers reported annual household incomes between $20,000 and $40,000, and 12.6\% of mothers \((n = 27)\) reported annual household incomes of more than $40,000. On average, four people \((M = 4.65, SD = 1.47)\) lived in the same households as mothers.

**Data Collection Procedures**

**Recruitment.** Mixed Purposive Sampling (MPS) (Mammen & Sano, 2012), a nonprobability sampling method for recruiting populations who may be difficult to reach, and for whom sampling frames are not available, was employed for this study. Initially, local extension educators or other family professionals who had relationships with low-income mothers in each study community, identified three mothers who they believed met the study criteria and who had strong connections to other low-income mothers in the community. They then contacted the mothers, explained the study, and then followed screening procedures to determine if the mothers met the study selection criteria. If a mother met the criteria, they invited her to participate in a two-hour in-person interview. If the extension staff and/or family professionals were not able to identify three mothers who met the study criteria, they posted fliers with information about the study and whom to contact to learn more about the study in locations that individuals who have low incomes may frequent (e.g., laundromats, food pantries, WIC offices (Special Supplemental Nutrition Program for Women, Infants, and Children)). Mothers who called the contact number on the flier
participated in a screening interview. If they met the eligibility criteria, they were invited to participate in an in-person interview.

Upon completion of the interviews, mothers were provided three fliers with information about the study to share with other mothers in their network that they believed met the eligibility criteria. Mothers who received the fliers, and who were interested in participating in the study, called the phone number listed on the flier, and the aforementioned recruitment procedures continued. Recruitment continued until the time period for data collection ended.

**Interviews.** Interviews were conducted in mothers’ homes, or at locations that ensured privacy and were convenient and comfortable to them (e.g., conference room at a library or extension office) by extension educators, community-based family professionals, graduate students, or faculty who had strong communication skills. Each interview was conducted in English or Spanish depending on the preference of each mother and included demographic questions (e.g., mother’s age, education level, household income), and questions from standardized instruments that were related to mental and physical health and overall well-being. Before each interview, written consent was provided by mothers. Mothers’ responses were entered into a computer template using a laptop. A focal child in each family was randomly selected from among all the children who lived with the mother at least half of the time and who were under 13 years of age. After each interview, mothers were offered a gift card to compensate them for their time and contributions to this study.
The study was approved by the associated University Institutional Review Board (IRB) (Appendix B).

Measures

**Economic pressure.** Economic pressure was assessed as a latent construct with two indicators: financial constraints and financial distress. Financial constraints included 12 questions that pertained to difficulty paying for personal and household basic needs. If the mother reported “yes” to the first question, “In the past year, have you had a hard time paying for basic needs of your family?” they were asked to respond to 11 more questions. For example, “In the past year, have you had a hard time paying for credit payments?” Response options included 1 (yes) and 5 (no). The responses of 5 (no) were recoded to 0 (no). If a mother responded “no” to the first question, then “no” was assigned to the other 11 questions. If a mother responded “yes” to the first question, all the remaining affirmative responses were summed together, and higher scores indicated more financial constraints. Cronbach’s alpha reliability coefficients for the study sample was .90.

**Financial distress** was measured using a modified version of the Personal Financial Wellness Scale (Prawitz et al., 2006). Mothers were asked to respond to 8 items using a 5-point Likert scale. The first two items assessed the level of financial stress “today” and financial stressful feelings “in general.” Response options ranged from 1 (very low) to 5 (very high). The next two items referred to satisfaction and feelings about one’s financial situation. Likert-scale responses ranged from 1 (completely dissatisfied) to 5 (completely satisfied) and
were further reverse coded into 1 (*completely satisfied*) to 5 (*completely dissatisfied*). The following three items pertained to difficulty in making ends meet (i.e., “How often do you want to go out to eat, go to a movie, or do something else and don't because you can’t afford it?”). Response options were from 1 (*never*) to 5 (*very frequently*). The last item referred to having confidence of having money to pay for a financial emergency that would cost about $100. Likert-scale responses ranged from 1 (*highly doubtful*) to 5 (*highly confident*) and were further reverse coded to 1 (*highly confident*) to 5 (*highly doubtful*). All the items were summed together, and higher scores indicated more financial distress. Cronbach’s alpha coefficient for the study sample was .87.

**Maternal depressive symptoms.** Maternal depressive symptoms were assessed by responses to the short form of the Center for Epidemiologic Studies Depression Scale (Andersen, Malmgren, Carter, & Patrick, 1994). Three indicators were identified through item parcels to construct maternal depressive symptoms as a latent variable. Mothers were asked to respond to 10 statements that were based on a 4-point Likert scale ranging from 1 (*Rarely or none of the time*) to 4 (*all the time*). Example statements included “I was bothered by things that usually don’t bother me” and “I was lonely.” Responses of 1 were recoded to 0, responses of 2 were recoded to 1, etc. Responses to two statements, “I felt hopeful about the future” and “I was happy”, were reverse coded so that a higher score indicated a more negative response towards the described statements. For this sample, Cronbach’s alpha coefficient was .83.
Co-parenting alliance. Co-parenting alliance was assessed using the Parenting Alliance Measure (PAM; Abidin & Konold, 1999), a 20-item scale that is used to examine the strength of the perceived alliance between parents who have children one to 18 years of age. Three indicators identified through item parcels were used to construct co-parenting alliance as a latent variable. Statements in the measure include “The other primary caregiver and I communicate well about the child,” “If the child needs to be punished, the other primary caregiver and I usually agree on the type of punishment,” and “During pregnancy or the adoption process, the other primary caregiver expressed confidence in my ability to be a good parent.” A 5-point Likert scale that ranged from 1 (strongly agree) to 5 (strongly disagree) was used. Responses were further reverse coded as 1 (strongly disagree) to 5 (strongly agree). Thus, higher scores represented stronger co-parental alliance. For this sample, Cronbach’s alpha coefficient was .95.

Family rituals. An adapted version of the Family Ritual Questionnaire (Fiese & Kline, 1993) was used to assess family rituals. Family ritual meaning incorporated the indicators of attendance and affect, was embedded in several settings (e.g., dinner, annual and special celebrations, religious holidays), and was refined and used to construct the latent variable of family rituals. The first indicator, attendance, included items such as “Family members are expected to be home for dinner” and “Family members are expected to attend and participate in annual celebrations.” The second indicator, affect, included the items, “Family members really look forward to these celebrations” and “Family members really
enjoy and look forward to religious holidays.” Responses to all the items originally were 1 (not true of our family), 3 (sometimes true of our family) and 5 (very true of our family). The items were recoded as 0 (not true of our family), 1 (sometimes true of our family) and 2 (very true of our family). Mean scores were created for each indicator and a larger mean score indicated a greater level of family ritualization. Cronbach’s alpha coefficient for this sample was .74.

**Child internalizing and externalizing behaviors.** The Child Behavior Checklist 18 months - 5 years (CBCL 1½-5) (Achenbach & Rescorla, 2000) and the Child Behavior Checklist 6 - 18 years (CBCL 6-18) (Achenbach & Rescorla, 2001) were used to assess internalizing and externalizing behaviors of the focal children. Internalizing behaviors are inner-directed, including behaviors characterized as emotionally reactive, anxious depressed, somatic complaints, and withdrawn. Example items included “Feelings are easily hurt,” and “Too shy or timid.” Externalizing behaviors are outer-directed, including behaviors characterized as attention problems, aggressive, and rule-breaking. Example items included “Gets in many fights,” and “Drinks alcohol without parents' approval.” Mothers were asked to respond to each item in the measures using a 3-point Likert scale with 0 (not true), 1 (sometimes true), and 2 (very true or often true). Raw scores of internalizing and externalizing behaviors were computed and then converted into normative T scores based on the Achenbach scoring protocol. Higher T scores indicated greater degrees of internalizing and externalizing behavior problems. T scores that are greater than 64 are considered to be in
the clinical range, and professional mental health evaluations are encouraged (Achenbach & Rescorla, 2000).

**Control variables.** Mothers’ age, marital status and education level were included as control variables to account for potential confounding effects on the endogenous variables (i.e., maternal depressive symptoms, co-parenting alliance, family rituals, and child internalizing and externalizing behaviors). Mothers’ age was reported by mothers (e.g., 37 years old). Mothers were asked to indicate their marital or relationship status (e.g., 1 = single, never married, not cohabiting, 2 = currently single as previously divorced or widowed, 3 = married), which later was recoded as 0 = single, 1 = married/partnered. Mothers also indicated the highest level of formal education they had obtained (e.g., 1 = 8th grade or less, 2 = some high school, 3 = high school).

**Data Analyses**

Descriptive analyses (i.e., means, standard deviations, ranges) on all observed variables in the model were conducted using SPSS 24.0. Additionally, *t*-tests were conducted to determine if there were significant mean differences between families who had younger children (18 months - 5 years of age) and families who had older children (6 - 12 years of age).

Although we examined the individual-level relationships, the data for this study were collected across seven states, which may have the data issue of non-independence within those geographic locations. The violation of data independence due to space may introduce
bias, affect statistical inferences, and lead to too many or too few Type I errors (Kenny & Judd, 1986). As a result, it can reduce result validity and cause researchers to misinterpret the observed relationships if non-independence assumption is ignored (Grawitch & Munz, 2004). Therefore, we tested for data independence in our sample. First, we conducted a one-way ANOVA to test if differences among states would be found for each endogenous variable. Then, we calculated the amount of variance explained by the state for each endogenous variable in the model. For latent endogenous variables (e.g., maternal depressive symptoms), loadings of the variable’s manifest indicators were used as weights when the latent scores were calculated. If differences among states were demonstrated for specific variables, we corrected the data for the non-independence by using the maximum likelihood robust estimator (MLR) and Mplus command “type = complex” with state as clusters for estimation. This sample had smaller clusters than parameters, which was not a desirable situation to correct for non-independence in Mplus since standard errors of the model parameter estimates may not be trustworthy. Thus, path estimates using regular maximum likelihood (ML) estimation (no adjustment of the non-independence) were also reported.

Structural equation modeling (SEM) was conducted to test the hypothesized model (see Figure 1), and to allow for the use of latent variables which are free of random errors (Markus, 2012). Two steps were completed to conduct the SEM analyses. The first step was to evaluate the measurement model, including model fit and factor loadings on each latent variable. Correlations among all latent and manifest variables were conducted as well. The
second step was to examine the hypothesized model. The model fit and standardized path coefficients for the final model were reported.

To examine whether the hypothesized model would differ by families who had younger focal children and families who had older focal children, Satorra-Bentler scaled chi-square difference tests (Satorra & Bentler, 2001, 2010) (when data adjusted the non-independence) and the regular chi square difference tests (when data did not adjust the non-independence) of the nested models were conducted. The overall comparison was conducted first based on the fully constrained model and the fully free model. If significant differences were found for the overall comparison, one-by-one comparisons of the more constrained model to the less constrained model were next conducted to determine the specific path(s).

Factor loadings for the latent variables were forced to be equal for both groups when multiple group analyses was conducted to ensure that the same latent constructs were used across the two groups. When testing the indirect effects, the bootstrap sampling procedure failed to work when we specified the Mplus command “type = complex” that was used to adjust for the non-independence. Thus, bootstrap sampling procedure was not used to test for indirect effects if using data with adjustment of the non-independence. When testing for indirect effects using data without adjustment of the non-independence, 1000 bias corrected bootstrap sampling procedure was performed, and 95% confidence intervals were used to determine the specific indirect effects. Root Mean Square Error Approximation (RMSEA; good fit if value is below .05 and moderate fit if value is below .08) and Comparative Fit Index (CFI;
good fit if value is above .95 and moderate fit if value is above .90) were used to evaluate the fit of the measurement model and the conceptual model.

**Missing data.** The manifest variables had .8% to 17.3% of the data missing: financial constraints (.8%), financial distress (1.7%), maternal depressive symptoms (.8%), co-parenting alliance (17.3%), family rituals (5.1%), younger child internalizing behaviors (12.3%), younger child externalizing behaviors (11.5%), older child internalizing behaviors (4.3%), and older child externalizing behaviors (5.2%). Most of these variables involve a small percentage of missing items. For example, among the 17.3% of the data missing in co-parenting alliance variable, 14.8% of them had just one item missing. Missing data were due to participants refusing to answer the question, leaving it blank or the question being not applicable for the participants or their children.

Mean substitution was used to handle missing data when the latent indicator scores (e.g., total score, mean score) were created in SPSS. Remaining missing data were handled by Full Information Maximum Likelihood (FIML) using Mplus, a generally used and recommended missing data estimation approach (Duncan, Duncan, & Strycker, 2013), when the SEM was conducted. This method enabled the use of all available data in order to estimate a likelihood function for each case and provided a more complete picture for all cases in the study (Schafer & Graham, 2002). The sample size that Mplus used to estimate the models was \( n = 229 \).
Results

Descriptive Statistics and Sample Comparisons

Table 1 includes the means, standard deviations and ranges for all the observed study variables \((n = 237)\) as well as the results of the mean difference tests that compared the two groups: families with younger focal children \((n = 122)\) and families with older focal children \((n = 115)\).

As shown in Table 1, mothers who had older focal children had significantly more depressive symptoms \((M = 9.11)\) and higher family ritual meaning \((M = 15.45)\) than mothers who had younger focal children \((M = 7.26, M = 14.72, \text{respectively})\). There were no other significant mean differences in other variables between the two groups.

Loadings of Latent Variables and Correlations among Study Variables

Table 2 and Table 3 present the standardized loadings of the measured variables on the latent variables (e.g., maternal depressive symptoms) based on the full sample \((n = 237)\) and the subsamples (families who had younger focal children, \(n = 122\); families who had older focal children, \(n = 115\)). The results indicated that all the loadings were highly significant. In addition, the loadings of the measured variables did not vary by the two groups of families (free factor loadings model: \(\chi^2(58) = 70.273\), fixed factor loadings model: \(\chi^2(70) = 87.577\), \(\Delta \chi^2(12) = 17.304, p > .05\)).

Table 4 shows the correlation results based on the full sample. All the significant associations were in the expected directions. For example, economic pressure correlated
positively with maternal depressive symptoms, negatively with co-parenting alliance and family rituals, and positively with child internalizing and externalizing behaviors. Notably, family rituals significantly related to child externalizing behaviors but not child internalizing behaviors.

Table 5 presents the correlation results based on the subsamples - families who had younger focal children and families who had older focal children. Examples of similar correlation patterns observed in both groups included significantly positive association between economic pressure and maternal depressive symptoms, significantly negative association between maternal depressive symptoms and co-parenting alliance, and non-significant association between family rituals and child internalizing behaviors. For distinct correlation patterns between the two groups, there was a non-significant association between maternal depressive symptoms and family rituals for families who had younger focal children while significantly negative association for families of older focal children. In addition, co-parenting alliance was significantly positively related to family rituals for families who had younger focal children while was not related for families who had older focal children. Moreover, there was a significant association between family rituals and child externalizing behaviors for families who had younger focal children while marginal significant association for families who had older focal children.
Investigating the State Clustering Effect

The one-way ANOVA results indicated significant differences in the mean scores of maternal depressive symptoms ($F(6, 230) = 7.587, p < .001$), co-parenting alliance ($F(6, 230) = 3.140, p < .01$), child internalizing behaviors ($F(6, 210) = 2.898, p < .05$) and externalizing behaviors ($F(6, 210) = 4.151, p < .01$). No significant mean differences were found for family rituals ($F(6, 230) = 1.613, p > .05$). The ICCs at the state level for maternal depressive symptoms, co-parenting alliance, family rituals, child internalizing behaviors and child externalizing behaviors were .169, .062, .019, .055 and .089.

Furthermore, “state” explained a portion of the variances in maternal depressive symptoms (17%), co-parenting alliance (8%), family rituals (4%), child internalizing (8%) and externalizing (11%) behaviors. Therefore, when conducting the following SEM analyses, we corrected for the non-independence due to the clustering effect within the states. Considering the limited accuracy of the correction using Mplus due to a small number of clusters, we report the results without adjustment for reference.

Testing the Causal Models

A measurement model was first estimated for the latent variables of economic pressure, maternal depressive symptoms, co-parenting alliance and family rituals. Results indicated a good fit to the data, $\chi^2(29) = 38.995$ with $p > .05$, CFI = .991 and RMSEA = .038. Next, the hypothesized structural equation model was estimated while controlling for mothers’ age, educational level and marital status. As shown on Figure 2, the model had a
good fit to the data (no adjustment of the clustering effect: $\chi^2(67) = 80.295, p = .128$, RMSEA = .029, CFI = .989; with adjustment of the clustering effect: $\chi^2(67) = 72.548, p = .300; \text{RMSEA} = .019; \text{CFI} = .995$). Mothers’ perception of economic pressure was positively related to maternal depressive symptoms ($\beta = .455, p < .001$), maternal depressive symptoms was negatively associated with co-parenting alliance ($\beta = -.203, p < .01$ without adjustment of the clustering effect; $p < .1$ with adjustment of the clustering effect), and co-parenting alliance was positively associated with family rituals ($\beta = .209, p < .05$ without adjustment of the clustering; $p < .1$ with adjustment of the clustering). There was a significantly direct association between maternal depressive symptoms and child externalizing behaviors ($\beta = .261, p < .001$ without adjustment of the clustering; $p < .05$ with adjustment of the clustering), but no significantly direct associations between co-parenting alliance and child internalizing or externalizing behaviors, and family rituals and child internalizing behaviors. Two paths became non-significant if adjusting the clustering effect of state: (1) from family rituals to child externalizing behaviors; (2) from maternal depressive symptoms to child internalizing behaviors. Therefore, maternal depressive symptoms, co-parenting alliance and family rituals did not mediate the relationship between economic pressure and child externalizing behaviors if adjusting for the clustering effect of state. For the paths from control variables to each endogenous variable, only one path was significant, which was from mother’s marital status to co-parenting alliance ($\beta = .291, p < .001$ without adjustment of the clustering; $p < .01$ with adjustment of the clustering). In other words, co-parenting alliance
was significantly stronger for mothers who were married or had a partner than mothers who were single. The model accounted for 22.4\% of the variance in maternal depressive symptoms, 14.3\% of the variance in co-parenting alliance, 5.3\% of the variance in family rituals, 10.4\% of the variance in child internalizing behaviors and 14.5\% of the variance in child externalizing behaviors.

Mediation relationships specified in the hypothesized model were tested with no adjustment of the clustering effect, and 1000 bias corrected bootstrap sampling procedure was performed and 95\% confidence intervals were used to determine the specific indirect effects. The following significant indirect effects were found: (1) Economic pressure → maternal depressive symptoms → child externalizing behaviors ($b = .662$, 95\% confidence interval [CI] [.228, 1.202]); (2) Economic pressure → maternal depressive symptoms → co-parenting alliance → family rituals → child externalizing behaviors ($b = .020$, 95\% confidence interval [CI] [.000, .056]).

To test whether the model differed significantly by the groups (families who had younger children vs. families who had older children), multiple group analyses were conducted. Results based on adjustment of the clustering and no adjustment of the clustering were consistent, which indicated there were no significant differences between the two groups (scaled chi-square difference ($24\) = 29.501, $p > .05$; $\Delta\chi^2(24) = 29.451, p > .05$).
Discussion and Conclusions

The purpose of the current study was to examine the family stress process involving family rituals and child behavior outcomes experienced by rural, low-income families. Given the way that families practice rituals and children’s experiences with family rituals may change in the developmental context (Eaker & Walters, 2002), this study examined whether the stress process that involving family rituals would vary by families with younger focal children (18 months - 5 years of age) and families with older focal children (6 - 12 years of age).

Although this study used the individual-level data to test the models, mothers who provided the data were from multiple states, which might potentially create the issue of data non-independence (Grawitch & Munz, 2004). Indeed, as has been demonstrated in these data, at least one of the seven states’ mean scores were significantly different from the others, including mean scores of maternal depressive symptoms, co-parenting alliance, child internalizing behaviors and externalizing behaviors. Correction of the non-dependence was needed, otherwise the results could be inaccurately reflecting the relationships, either inflate or deflate (Kenny & Judd, 1986). Such changes in results after the adjustment of non-independence were observed in our findings. Due to the limited accuracy of the correction method of non-independence used in this study, our findings were interpreted by considering using both settings of data (with and without the adjustment of the non-independence).
The two main conclusions from this study were that: (a) economic pressure may indirectly affect child externalizing behaviors via mothers’ depressive symptoms, co-parenting alliance and perceptions of family rituals, and (b) such relationships did not vary by families with younger focal children and families with older focal children.

Consistent with the literature, economic pressure perceived by mothers is associated with higher levels of maternal depressive symptoms (Downey & Greder, 2014; Newland et al., 2013). For rural low-income mothers, experiencing depressive symptoms may be a long-term health and well-being concern for themselves, their children and families because of the challenges of seeking mental healthcare in rural America (Greder et al., 2017). In the Thomas and colleagues (2009) analysis, for example, shortage of mental health professionals was best predicted by the rurality and per capita income. More specifically, a 1-point increase in rurality level and a $1,000 decrease in per capita income were linked to the increases of 3.3% and 1.3% in unmet needs for mental health professionals, respectively. If, as has been confirmed in our study, if maternal depressive symptoms go unaddressed, it spills over to the co-parenting relationship. More specifically, higher levels of maternal depressive symptoms are associated with less respect, support and alliance that the mothers relate to the other co-parent of the shared responsibility for rearing their focal children. In addition, maternal depressive symptoms have a significantly direct link to child externalizing behaviors and possibly internalizing behaviors as well, which were supported in previous studies on maternal depressive symptoms and child behaviors (Goodman et al., 2011; Van Der Waerden...
et al., 2015). Moreover, the disrupted co-parenting alliance because of mothers’ experience of depressive symptoms from economic pressure was predictive of mothers’ lower perceptions of their family rituals, indicating a spillover effect of poor dyadic relationship between the co-parents to the broader family relationships. Furthermore, there is a possibly negative association between family rituals and child externalizing behaviors, but certainly not internalizing behaviors. The potential explanations include: (a) externalizing behaviors may be more likely to be detected and drawn attention by the rural mothers than internalizing behaviors, as a result, the association between family rituals and child externalizing behaviors are more likely to be reflected based on the mother-report data; (b) child internalizing and externalizing behaviors may be similarly or differently attributed to maternal depression depending on which factors contribute to the maternal depression and which process went through towards child behaviors (Goodman et al., 2011); and (c) family rituals have been demonstrated to be beneficial for families (Imber-Black, 1988), but the individual experiences/perceptions in family rituals may vary by family members (Wolin & Bennett, 1984) and, in turn, the child outcomes. In this study, both family rituals and child behavior data were collected from the mothers. The meaningful rituals that the mothers perceive may not be the same view if from the child perspectives and, thus, be irrelevant to child behaviors (even if they were mothers’ report). In addition, when family rituals are rigid and do not adapt to well reflect the child developmental change, it may also be irrelevant to the child outcomes (Roberts, 1988).
This study did not find support for the hypothesis that the child developmental age matters in understanding the relationships among economic pressure, maternal depressive symptoms, co-parenting alliance, family rituals and child behaviors among rural low-income families. In other word, there is no significant difference of economic pressure affecting child behaviors via individual (e.g., maternal depressive symptoms) and family processes (e.g., co-parenting alliance, family rituals) based on our data. Such finding is unexpected, especially relating to the process of family rituals in families with children under different developmental contexts. One potential explanation for this finding is that this study assessed the meaning dimension of family rituals rather than the routine dimension, which may be less sensitive to change in the child developmental change context, especially from the perspectives of mothers, the active agents of family rituals promotion (Fiese, 1992). For example, family members may be always expected by the mothers to attend some family activities (e.g., family celebrations), no matter whether when their children are at younger ages or older ages or whether the reality is true or not. For routine dimension of family rituals, instead, the regularity of some family activities may not always be held especially when the children become older and the amount of time that they spend with their families decreases due to increases with other than the families (e.g., peer, school). In addition, roles assigned for different family members in the joint activities may be renegotiable or shifting as children age (Eaker & Walters, 2002), which may affect how family rituals are practiced.
and adapted, but may not alter the meaning of bringing the family together for emotional ties, security and stability and organization in family life (Fiese, 2006).

**Strengths, Limitations and Recommendations for Future Research**

This study calls attention to the individual and family functioning and child behavior well-being in the context of economic stress exposure among an understudied population – rural low-income families who have children. The use of structural equation modeling (SEM) allows a simultaneous test of the complex patterns of the relationships described in the conceptual model with minimum bias and estimated errors. Findings from this study expands current knowledge by showing that family rituals may be another mediator in the family economic stress process and child behavior problems among rural low-income families. More specifically, findings from this study revealed a direct relationship between economic pressure and mothers’ psychological well-being, and a possibly indirect relationship between economic pressure and child externalizing behavior problems that was partially explained by maternal depressive symptoms, co-parenting alliance and family rituals. This study also highlights family economic stress process that involves maternal depressive symptoms, co-parenting alliance and family ritual meaning does not differ by age of children (i.e., younger vs. older children) in rural low-income families.

Despite these strengths, it is important to consider the findings in context of limitations of the study. First, data used for this study had the issue of non-independence and the method used to adjust for non-independence may not be accurate due to a small number
of clusters (less than 20). Second, the cross-sectional nature of the study limits causal inferences of the findings. Although the processes were ordered as maternal depressive symptoms, co-parenting alliance and family rituals, they could also be ordered as others, e.g., family rituals, maternal depressive symptoms and co-parenting alliance. Third, data of this study were provided directly by one parent (i.e., mothers), which could be biased (Ringoot et al., 2015). For example, mothers with mental health concerns (e.g., depression) tend to report higher levels of behavior problems of their children than do mothers without mental health concerns (Najman et al., 2000). Additionally, as has been mentioned earlier, the mothers and other family members may not share the same view on family rituals, even though they are family and have shared activities. Lastly, this study did not include parenting behaviors – a key mediator in the family stress model. Because a variable that assessed parenting behaviors was not asked in the RFSH project. It is possible that a parenting variable that was not included in this study might have bridged the link between family rituals and child behaviors. It is also possible that another overarching family variable could explain the relationship between family rituals and child behaviors, e.g., family cohesion, family competence. Evidence has been provided in prior studies of the mediating effect of both parent-report and child-report family cohesion between parent-report family rituals and child-report child well-being (Crespo et al., 2011).

Future research on individual-level relationships may consider collecting data from the same/similar geographic location, or from a larger number of geographic locations to
increase the possibility of adjustment accuracy or identify other non-independence correction methods if using multiple geographic locations. Additionally, longitudinal studies are needed to clarify the causation and directionality of the variables specified in these relationships. Moreover, future research on one hand, should consider incorporating the voice from other family members (e.g., father) and use multi-informant assessment (e.g., observation, teachers’ report); on the other hand, investigate the role of the other big dimension of family rituals- family ritual routines- in the family stress process on child behaviors among rural low-income families, or introduce the ritual practice in specific settings (e.g., dinnertime, religious practices) into the model. Furthermore, future research involving family rituals as part of economic stress process should test a more complete stress model that includes the parenting behaviors among rural low-income families. Lastly, future research could add additional mediating variables (i.e., family cohesion, family competence) to explore if they help better explain the link between economic pressure and child behaviors via individual and family processes. Future research could also examine the moderation role of family rituals of the economic stress effects.

**Implications for Policy and Practice**

Findings from this study can inform policy and practice in multiple ways. First, findings re-emphasize the importance of reducing economic pressure for rural low-income families with children. Policies and programs that provide additional money and resources to rural, low-income families could help reduce economic difficulties, which in turn would
reduce perceived economic pressure by rural low-income families. For example, work-based income supplementation, such as the Earned Income Tax Credit (EITC; Center on Budget and Policy Priorities, 2018), and welfare programs, such as Family Investment Program (Iowa Department of Human Services, n.d.), Supplemental Nutrition Assistance Program (SNAP; USDA Food and Nutrition Service, 2018a), Women, Infants, and Children Supplemental Nutrition Program (WIC; USDA Food and Nutrition Service, 2018b). Additionally, policies and programs could help create more livable wage jobs in rural communities for individuals who have low formal education (Yoshikawa et al., 2012).

Second, practices targeted lessening or preventing family economic stress on positive family process and child adjustment among rural low-income families may want to consider adding family rituals in their current curricula. For example, they may want to help rural low-income mothers a) raise awareness of the importance of family ritual meaning for child behavioral well-being, b) identify the potential challenges (e.g., economic difficulties, disrupted co-parenting relationship) to their family rituals, and c) develop strategies to maintain or modify family rituals to strengthen family resilience in challenging situations.

Third, attention should also be paid to the other two mediators – maternal depressive symptoms and co-parenting alliance. For maternal depressive symptoms, policies and practice may want to: (a) increase rural low-income mothers’ literacy of maternal depression and thus have positive attitudes towards seeking depression treatment; (b) identify simple but valid screening tool to determine early if it is necessary to refer to the mental health
professionals; and (c) provide more affordable and accessible mental healthcare resources.

For co-parenting alliance, policies and practice may want to: (a) promote rural low-income households’ co-parenting education (e.g., improving the awareness of raising children as a joint responsibility); (b) provide funding for services and resources to support rural low-income families in improving communication skills and parenting skills between the co-parents (e.g., mother-father, mother-grandmother); and (c) encourage the establishment of local informal co-parent support groups.

Lastly, despite sharing some similar characteristics (e.g., low-income, had at least one child under 13 years of age, lived in rural America), perceived economic pressure, maternal depressive symptoms, co-parenting alliance, and child internalizing and externalizing behaviors varied significantly among rural low-income families who lived in different states due to factor such as geographical size of community, economic conditions, community and state traditions (Bolin et al., 2015). Thus, it is necessary for policymakers and program administrators to recognize diversity in people and resources across rural areas, and to tailor programs and policies to best meet local needs.

References


Najman, J. M., Williams, G. M., Nikles, J., Spence, S., Bor, W., O’Callaghan, M., ... & Andersen, M. J. (2000). Mothers' mental illness and child behavior problems: Cause-


Table 1. Descriptive Statistics for the total Sample (n = 237) and Subsamples (Families with Younger Children, n = 122 and Families with Older Children, n = 115)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full sample (n=237) M (SD)</th>
<th>Range (n=237)</th>
<th>Subsample (n=122) M (SD)</th>
<th>Subsample (n=115) M (SD)</th>
<th>Range (n=122) (n=115)</th>
<th>t-score</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial constraints</td>
<td>3.80 (3.52)</td>
<td>0.00-11.00</td>
<td>3.72 (3.56)</td>
<td>3.88 (3.50)</td>
<td>0.00-11.00</td>
<td>-.347</td>
<td>.729</td>
</tr>
<tr>
<td>Financial distress</td>
<td>27.24 (6.95)</td>
<td>9.00-40.00</td>
<td>26.60 (6.52)</td>
<td>27.92 (7.35)</td>
<td>9.00-40.00</td>
<td>-1.468</td>
<td>.143</td>
</tr>
<tr>
<td>Maternal depressive symptoms</td>
<td>8.16 (6.07)</td>
<td>0.00-29.00</td>
<td>7.26 (5.46)</td>
<td>9.11 (6.54)</td>
<td>0.00-27.00</td>
<td>-2.374</td>
<td>.018*</td>
</tr>
<tr>
<td>Co-parenting alliance</td>
<td>89.42 (12.64)</td>
<td>28.00-100.00</td>
<td>90.58 (11.5)</td>
<td>88.197 (13.63)</td>
<td>0.00-100.00 (44.00-100.00)</td>
<td>1.457</td>
<td>.145</td>
</tr>
<tr>
<td>Family rituals</td>
<td>15.07 (2.79)</td>
<td>6.00-18.00</td>
<td>14.72 (2.96)</td>
<td>15.45 (2.57)</td>
<td>6.00-18.00 (8.00-18.00)</td>
<td>-1.982</td>
<td>.049*</td>
</tr>
<tr>
<td>Child internalizing behaviors</td>
<td>52.39 (10.39)</td>
<td>29.00-79.00</td>
<td>51.15 (11.30)</td>
<td>53.59 (9.31)</td>
<td>29.00-79.00 (33.00-74.00)</td>
<td>-1.734</td>
<td>.083</td>
</tr>
<tr>
<td>Child externalizing behaviors</td>
<td>52.92 (11.03)</td>
<td>32.00-92.00</td>
<td>52.39 (12.09)</td>
<td>53.44 (9.90)</td>
<td>32.00-92.00 (33.00-79.00)</td>
<td>-.701</td>
<td>.484</td>
</tr>
</tbody>
</table>

* p < 0.05
Table 2. *Standardized Loadings of Measured Variables on the Latent Variable for the Full Sample (n = 237)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Economic Pressure</th>
<th>Maternal Depressive Symptoms</th>
<th>Co-parenting Alliance</th>
<th>Family Rituals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Constraints</td>
<td>.565***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Distress</td>
<td>.929***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Depressive Symptoms Parcel 1</td>
<td></td>
<td></td>
<td>.679***</td>
<td></td>
</tr>
<tr>
<td>Maternal Depressive Symptoms Parcel 2</td>
<td></td>
<td></td>
<td>.835***</td>
<td></td>
</tr>
<tr>
<td>Maternal Depressive Symptoms Parcel 3</td>
<td></td>
<td></td>
<td>.760***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 1</td>
<td></td>
<td></td>
<td>.930***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 2</td>
<td></td>
<td></td>
<td>.924***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 3</td>
<td></td>
<td></td>
<td>.924***</td>
<td></td>
</tr>
<tr>
<td>Family rituals- attendance</td>
<td></td>
<td></td>
<td></td>
<td>.611***</td>
</tr>
<tr>
<td>Family rituals- affect</td>
<td></td>
<td></td>
<td></td>
<td>.723***</td>
</tr>
</tbody>
</table>

***p<.001
Table 3. Standardized Loadings of Measured Variables on the Latent Variable for Families with Younger Focal Children (shown first) and Families with Older Focal Children (in parenthesis)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Economic Pressure</th>
<th>Maternal Depressive Symptoms</th>
<th>Co-parenting Alliance</th>
<th>Family Rituals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Constraints</td>
<td>.448*** (.687***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Distress</td>
<td>.992*** (.881***</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Maternal Depressive Symptoms Parcel 1</td>
<td></td>
<td>.639*** (.711***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Depressive Symptoms Parcel 2</td>
<td></td>
<td></td>
<td>.826*** (.865***</td>
<td></td>
</tr>
<tr>
<td>Maternal Depressive Symptoms Parcel 3</td>
<td></td>
<td></td>
<td>.723*** (.787***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 1</td>
<td></td>
<td></td>
<td>.954*** (.923***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 2</td>
<td></td>
<td></td>
<td>.873*** (.972***</td>
<td></td>
</tr>
<tr>
<td>Co-parenting alliance Parcel 3</td>
<td></td>
<td></td>
<td>.937*** (.939***</td>
<td></td>
</tr>
<tr>
<td>Family rituals- attendance</td>
<td></td>
<td></td>
<td></td>
<td>.620*** (.994***</td>
</tr>
<tr>
<td>Family rituals- affect</td>
<td></td>
<td></td>
<td></td>
<td>.723*** (.439**</td>
</tr>
</tbody>
</table>

*** p<.001
Table 4. *Correlations among All Variables in the Model for the Full Sample (n = 237)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Economic pressure</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Depressive symptoms</td>
<td>.391**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Co-parenting alliance</td>
<td>-.173**</td>
<td>-.269**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Family rituals</td>
<td>-.178**</td>
<td>-.115*</td>
<td>.170**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Child internalizing Tscores</td>
<td>.189**</td>
<td>.210**</td>
<td>-.189**</td>
<td>-.098</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. Child externalizing Tscores</td>
<td>.211**</td>
<td>.258**</td>
<td>-.197**</td>
<td>-.175**</td>
<td>.604**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. Mother’s age</td>
<td>.067</td>
<td>.049</td>
<td>-.074</td>
<td>-.015</td>
<td>.078</td>
<td>.049</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>8. Mother’s educational level</td>
<td>.041</td>
<td>.055</td>
<td>-.014</td>
<td>.086</td>
<td>-.074</td>
<td>-.046</td>
<td>-.028</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9. Mother’s marital status</td>
<td>-.145*</td>
<td>-.160*</td>
<td>.308**</td>
<td>.042</td>
<td>-.166*</td>
<td>-.121</td>
<td>.110</td>
<td>.035</td>
<td>-</td>
</tr>
</tbody>
</table>

*p<.1, *p<.05, **p<.01, ***p<.001
Table 5. Correlations for All Variables in the Model (Values for Families with Younger Focal Children are above the Diagonal, n = 122; Values for Families with Older Focal Children are below the Diagonal, n = 115)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Economic pressure</td>
<td>-</td>
<td>.330**</td>
<td>-.167</td>
<td>-.130</td>
<td>.183</td>
<td>.231*</td>
<td>.145</td>
<td>-.134</td>
<td>-.126</td>
</tr>
<tr>
<td>2. Depressive symptoms</td>
<td>.424**</td>
<td>-</td>
<td>-.283**</td>
<td>-.030</td>
<td>.202*</td>
<td>.287**</td>
<td>.044</td>
<td>-.069</td>
<td>-.203*</td>
</tr>
<tr>
<td>3. Co-parenting alliance</td>
<td>-.164*</td>
<td>-.241**</td>
<td>-</td>
<td>.211*</td>
<td>-.161</td>
<td>-.132</td>
<td>-.133</td>
<td>-.016</td>
<td>.265**</td>
</tr>
<tr>
<td>4. Family rituals</td>
<td>-.268**</td>
<td>-.259**</td>
<td>.165</td>
<td>-</td>
<td>-.122</td>
<td>-.201*</td>
<td>-.142</td>
<td>.088</td>
<td>-.058</td>
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<tr>
<td>5. Child internalizing Tscores</td>
<td>.188*</td>
<td>.198*</td>
<td>-.208*</td>
<td>-.109</td>
<td>-</td>
<td>.773**</td>
<td>.085</td>
<td>-.204*</td>
<td>-.147</td>
</tr>
<tr>
<td>6. Child externalizing Tscores</td>
<td>.192*</td>
<td>.231*</td>
<td>-.266**</td>
<td>-.163*</td>
<td>.347**</td>
<td>-</td>
<td>.137</td>
<td>-.126</td>
<td>-.129</td>
</tr>
<tr>
<td>7. Mother’s age</td>
<td>-.066</td>
<td>-.068</td>
<td>.039</td>
<td>-.014</td>
<td>-.029</td>
<td>-.087</td>
<td>-</td>
<td>-.108</td>
<td>.188*</td>
</tr>
<tr>
<td>8. Mother’s educational level</td>
<td>.185*</td>
<td>.150</td>
<td>-.009</td>
<td>.080</td>
<td>.053</td>
<td>.038</td>
<td>.024</td>
<td>-</td>
<td>.024</td>
</tr>
<tr>
<td>9. Mother’s marital status</td>
<td>-.169*</td>
<td>-.136</td>
<td>.358**</td>
<td>.164*</td>
<td>-.207*</td>
<td>-.116</td>
<td>.028</td>
<td>.045</td>
<td>-</td>
</tr>
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*p<.1, *p<.05, **p<.01, ***p<.001
Figure 1. Conceptual model
Figure 2. Results of the model (results for no adjustment of the clustering effect are shown first, followed by results for adjustment of the clustering effect ‘/’; n = 237). No adjustment of the clustering effect: \( \chi^2(67) = 80.295, p = .128; \) RMSEA = .029; CFI = .989; Adjustment of the clustering effect: \( \chi^2(67) = 72.548, p = .300; \) RMSEA = .019; CFI = .995. Standardized path coefficients are reported (\(^* p < .05, ^{**} p < .01, ^{***} p < .001\)). Mothers’ age, educational level and marital status served as control variables.
CHAPTER 3. THE ROLE OF INDIVIDUAL AND FAMILY PROCESSES ON THE RELATIONSHIP BETWEEN STRESS AND RURAL MIDWESTERN LATINX CHILD BEHAVIORS

Modified from a manuscript to be submitted to

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**Abstract**

Factors at multiple system levels inhibit or promote health and well-being among rural Latinx immigrant families. Guided by the family stress model, this study examined roles of individual processes (maternal depressive symptoms, parenting competence) and family process that was beyond the dyadic focus (family rituals), on relations between stressors (economic pressure, acculturative stress) and internalizing and externalizing behaviors among rural low-income Latinx children in a Midwestern state. Findings revealed: (a) maternal acculturative stress was directly related to both child internalizing and externalizing behaviors; (b) economic pressure and maternal acculturative stress were both indirectly associated with child internalizing behaviors through maternal depressive symptoms; and (c) economic pressure and maternal acculturative stress were both indirectly associated with child externalizing behaviors through maternal depressive symptoms and parenting competence and family rituals. Implications for research, practice, and policy are
discussed as they relate to the relations between specific stressors, individual and family processes, and child behaviors.

**Background**

The face of rural U.S. communities, where one in five people live, has changed dramatically over recent decades (Brown & Schaft, 2011), including the rural Midwest (Sharp & Lee, 2017). Unlike other places in the U.S. (e.g., Southwest and East Coast), the population in many rural Midwestern communities is composed of little racial and ethnic diversity (Engstrom, 2000). Due to employment opportunities (e.g., meatpacking, poultry processing), affordable living, personal safety and social networks, over recent decades many rural Midwestern communities have experienced an influx of immigrants and increased racial/ethnic diversity (Flores et al., 2011; May et al., 2015; McConnell, 2004). For example, the percent of the Latinx\(^1\) population in one Midwestern state increased from 1.2 % in 1990 to 6.0 % in 2017\(^2\). Additionally, between 2000 and 2017, the increase of the Latinx population in rural communities in one Midwestern state ranged between 5.5% to 16.6%\(^3\).

The large migration of the Latinx population to rural Midwestern communities helps reverse the loss of the rural labor force and revitalizes rural economies (Lewis, 2009; Sharp

\(^{1}\) The term Latinx includes people of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race (Office of Management and Budget, n.d.).


Lee, 2017). However, integration of Latinx families in rural communities and their health
and well-being are of great concern. For example, May et al. (2015) suggested that Latinx
immigrants in rural Midwestern communities are largely unintegrated due to multiple
challenges such as conflicting cultural values, language, disparity in types of employment,
separate social networks, and discrimination. Greder and Reina’s (2018) analysis of
interview data from first-generation Mexican immigrant women residing in rural Midwestern
communities revealed similar barriers, such as low socioeconomic status, lack of
documentation, limited English proficiency, lack of easily accessible and culturally
responsive health care, and lack of health insurance. However, in contrast to rural areas in the
Southwest, West, Northeast and in larger urban areas, rural Midwestern communities
commonly remain ill-prepared to meet the needs of Latinx immigrant families (Raffaelli
& Wiley, 2013). Latinx immigrants may be ineligible or unable to access existing resources and
services because of their documentation status and other barriers, such as limited English
proficiency, lack of driver’s license (May et al., 2015). Furthermore, Latinx immigrants
commonly have low levels of formal education and job training (Raffaelli & Wiley, 2013).
As a result, Latinx immigrant families, especially families who recently moved to the U.S.
and to rural Midwestern communities, experience multiple stressors including economic
pressure and acculturative stress.

Previous research has suggested that economic pressure and acculturative stress
among parents have direct negative influences on children’s behaviors and adjustment
(Dennis, Parke, Coltrane, Blacher, & Borthwick-Duffy, 2003; Parke et al., 2004; Leidy et al., 2009; Lorenzo-Blanco et al., 2016) by creating difficulty in meeting children’s needs and by interfering with children’s development. Economic pressure and acculturative stress indirectly affect child outcomes through parent distress, lowered parent capacity to provide quality child care, decreased family cohesion, strained family relationships, etc. (Dennis et al., 2003; Lorenzo-Blanco et al., 2016).

Although studies have examined the influence of family stress (mainly economic stress) process on child outcomes among Latinx families, there is a dearth of research that specifically examined stress related to acculturation alongside economic stress process on child outcomes. Furthermore, studies that examined the family stress process and child behaviors among rural populations have predominantly been dyadic in focus (e.g., parent-child, interparent) (Conger et al., 2002; Neppl, Senia, & Donnellan, 2016). However, family members are emotionally connected and interdependent on multiple levels (Kerr, 2000). Therefore, further investigation is needed to more fully understand the stress process and child behaviors among Latinx immigrant families in rural Midwestern communities. Guided by the family stress model (FSM), this study examined roles of individual (maternal depressive symptoms, parenting competence) and family processes (family rituals, an indicator of family organization as a whole) on relations between culturally and contextually relevant stressors (acculturative stress, economic pressure) and child internalizing and
externalizing behaviors among low-income Latinx immigrant families in rural Midwestern communities.

**Literature Review**

**Economic Pressure and Child Outcomes**

Economic pressure is an individual’s subjective assessment of economic circumstances (Conger et al., 1993), which reflects the psychological meaning to the individual’s objective economic condition (Masarik & Conger, 2017). Compared to objective economic hardship, economic pressure plays a more central and critical role in assessing the influences for individual and family functioning (Conger et al., 1993; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004). Economic pressure has also been found to be a key mediator between economic hardship and child outcomes (Mistry et al., 2004).

Substantial research on economic hardship (i.e., economic pressure) has demonstrated that economic pressure places children at risk for negative outcomes (Conger et al., 2002; Jeon & Neppl, 2016; McLoyd, 1998; Neppl, Senia, & Donnellan, 2016; Robila & Krishnakumar, 2006; Solantaus, Leinonen, & Punamäki, 2004), including, but not limited to, child internalizing (Landers-Potts et al., 2015; Robila & Krishnakumar, 2006; White, Liu, Nair, & Tein, 2015), externalizing behaviors (Neppl et al., 2016; Ponnet, 2014; White et al., 2015), and conduct disorders (Shaw & Shelleby, 2014), and self-efficacy (Whitbeck et al., 1997). Economic hardship can impact children directly and indirectly (Yoshikawa, Aber, & Beardslee, 2012). In addition to direct impacts, efforts have been made theoretically and
empirically to explore mediated effects of economic hardship on children. For example, Yoshikawa and colleagues (2012) conducted a comprehensive review of poverty on child mental, emotional and behavioral health. They proposed a conceptual framework that included individual factors (e.g., child stress, parental health), family factors (e.g., parent-child relationship conflict, parenting behaviors) and institutional factors (e.g., neighborhood danger, low quality classroom) to explain how economic disadvantages affect child outcomes through these factors. Earlier work by Conger and Elder (1994) focused on individual and family level mediators, and later they proposed the family stress model (FSM), which has been applied by numerous researchers to understand the family stress process and its potential impact on child outcomes, in particular child behavioral and emotional outcomes. Researchers also examined other pathways (e.g., additional risk factors, protective factors or moderators) to improve our understanding of the stress process among a diverse set of families (Masarik & Conger, 2017). For example, research by White and colleagues (2015) incorporated parents’ cultural value orientations and neighborhood adversity as two moderators when they examined the effects of environmental stress on Mexican American adolescents’ internalizing and externalizing behaviors. Findings suggested that mothers’ familism value orientations may buffer the negative effects of economic pressure on positive parenting, and neighborhood adversity could interact with harsh parenting to affect child internalizing behaviors.
**Acculturative Stress and Child Outcomes**

Acculturative stress is an individual’s stress reaction towards acculturation (Berry, 2006) which includes the instrumental and environmental stressors experienced by immigrants (Caplan, 2007). Recent conceptualizations of adult acculturative stress includes not only conflicts from the progressive acquisition of the majority culture, but also lower retention of culturally-based behaviors and practices associated with one’s culture of origin (Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). Studies of U.S. Latinx families found acculturative stress was associated with an individual’s negative health and behavior outcomes, such as depressive symptoms (D’Anna-Hernandez, Aleman, & Flores, 2015; Snyder, 1987), anxiety symptoms (Hovey & Magaña, 2000), suicidal ideation (Hovey & King, 1996) and substance-use (Martinez, 2006). Prior findings also provided evidence of significant relations between acculturative stress and poor interparental or parent–child relationships. For example, Caetano and colleagues (2007) found perceived higher levels of acculturative stress were directly associated with more involvement in intimate partner violence for both Latino men and women. Stress from acculturation gap between Latinx children and their parents has been argued to exacerbate family conflict and reduce family cohesion (Smokowski, Rose, & Bacallao, 2008; Szapocznik & Kurtines, 1993).

In contrast to much research focused on Latinx child-reported acculturative stress and outcomes (Cervantes, Padilla, & Napper, 2013; Schwartz et al., 2015), little research has focused on acculturative stress among Latinx parents and their children’s outcomes (Leon,
Among these few studies, Leidy et al. (2009) found parent acculturative stress significantly mediated the relationship between marital quality and child internalizing behaviors among six-grade youth after controlling for family income and the number of years parents resided in the U.S. Lorenzo-Blanco and colleagues (2016) investigated the longitudinal impacts of acculturative stress among Latino parents on both child-reported and parent-reported family functioning and child outcomes. Findings suggested that the initial levels of parent acculturative stress predicted worse youth-reported and parent-reported family functioning. They found that increase in parent acculturative stress would predict lower youth-reported family functioning, but more positive parent-reported family functioning. Additionally, youth-reported family functioning mediated the relations among parent acculturative stress and youth self-esteem, depressive symptoms and aggression, and parent-reported family functioning would mediate the relations between parent acculturative stress and youth tobacco and alcohol use. Parent acculturative stress as a risk factor for negative child outcomes has been established in other minority groups as well. For example, research by Hou and colleagues (2016) revealed family processes involving interparental conflicts and parent-child conflicts and alienation were associated with maternal and paternal acculturative stress on adolescent adjustment among Chinese American families.

**Processes at the Individual and Family Levels**

**Individual processes.** Numerous studies have shown that individual reactions to stress have served as mediators between stress and child outcomes (Dennis et al., 2003;
Goodman et al., 2011; Greder, Peng, Doudna, & Sarver, 2017; Morrison, McLoyd, & Tokoyawa, 2005). Maternal depression and parenting competence are two parent-level factors that have often been related to stress and child outcomes. Mothers have reported symptoms of distress (e.g., depression) when exposed to stress, such as economic pressure (Masarik & Conger, 2017) and acculturative stress (Zeiders, Umaña-Taylor, Updegraff, & Jahromi, 2015). Studies have shown that depressed mothers have reduced empathy and emotional responsiveness towards their children (Goodman & Gotlib, 1999), lower confidence and ability to care for and raise their children (Kiernan & Huerta, 2008), and exhibit negative and hostile parenting behaviors when interacting with their children (Downey & Coyne, 1990; Lovejoy, Graczyk, O’Hare, & Neuman, 2000). Thus, maternal depression places children at risk for negative outcomes (Coyne & Thompson, 2011; Goodman et al., 2011).

Parenting competence is related to parents’ confidence about their ability to raise their children successfully (Jones & Prinz, 2005). Exposure to stress lowers parenting competence (Jackson & Scheines, 2005; Raver & Leadbeater, 1999). Migration to another country with different cultural values and norms can additionally bring more challenges to parenting beliefs and practices for immigrant parents. Martinez (2006) suggested that Latinx parents may experience increased frustration in unsuccessful establishment of authority, problems with communication and monitoring their children due to acculturation gaps. Prior studies provided evidence that parents with low parenting competence were less likely to
demonstrate parental involvement, monitoring and responsiveness, and more likely to use parental psychological control (Bogenschneider, Small, & Tsay, 1997; Shumow & Lomax, 2002) and harsh parenting practices (Mash, Johnston, & Kovitz, 1983) towards their children, which may place children at high risk for poor outcomes. In addition, several studies have demonstrated a negative association between maternal depression and parenting competence (Cutrona & Troutman, 1986; Leahy-Warren, McCarthy, & Corcoran, 2012; Weaver, Shaw, Dishion, & Wilson, 2008).

**Family processes.** Family processes (e.g., family relationships) may also play significant roles in the relationships between stress and child outcomes (Conger et al., 1993; R. Conger, K. Conger, & Martin, 2010; Lorenzo-Blanco et al., 2016; Masarik & Conger, 2017). Conceptually, stress stemming from economic conditions and/or acculturation would limit a child’s access to resources and foster a tense family environment and poor family functioning, which in turn would be harmful to children’s development (Roper et al., 2016). Numerous empirical studies have demonstrated the interparental conflict and poor parent-child relationships (e.g., conflict, sense of alienation) as part of the family stress process on child outcomes (Conger et al., 1993, 2010; Nepplet al., 2016; Yoshikawa et al., 2012). For example, Ponnet (2013) found that economic pressure was indirectly associated with increased adolescents’ problem behaviors through parents’ depressive symptoms, interparental conflict, and negative parenting. However, previous studies that included family processes on child outcomes have predominantly focused on dyadic family relationships (i.e.,
interparental, parent-child relationships). Family is emotionally connected and interdependent on multiple levels (Kerr, 2000). As Cox and Paley (2003) suggested, the process-oriented thinking about child outcomes should be considered at multiple levels in families from the individual to the whole family.

Family rituals, defined as repeated practices involving two or more family members with the features of symbolic communication, time commitment and continuity across generations (Spagnola & Fiese, 2007), have been shown to play important roles in individual and family positive outcomes (Fiese et al., 2002). For example, Crespo and colleagues (2011) found that family ritual meaning was indirectly linked to adolescents’ well-being through parents’ and adolescents’ perceptions of family cohesion.

Furthermore, among families who have young children, family rituals play important roles in the socioemotional, language, academic and social skill development of young children (Spagnola & Fiese, 2007). For families with older children (e.g., adolescents), the practice of family rituals has been linked to child psychosocial maturity (Eaker & Walters, 2002), well-being (Crespo, Kielpikowski, Pryor, & Jose, 2011), social connectedness, anxiety and depression (Malaquias, Crespo, & Francisco, 2015). Fiese (2006) also found that the practice of family rituals can protect children from some risks during family transition and adversity (i.e., divorce, poverty). For immigrant families, the maintenance of family rituals can be challenging due to dilemmas that families face when they feel they need to choose between “either/or” and “both/and” in regards to behaviors or practices. Stress
manifested from both economic conditions and acculturation, may make it even more
difficult for Latinx immigrant families to maintain family rituals.

**Child Behaviors**

Child behaviors have long been a topic of interest for researchers. Research on
individual behavior problems has indicated that the early onset of these problems may
significantly affect a child’s later development, decrease life quality in adulthood, and
contribute to risks for long-term health and well-being (Burlaka, Bermann, & Graham-
Bermann, 2015; Fergusson, John Horwood, & Ridder, 2005; Jokela, Ferrie, & Kivimäki,
2009; The National Bureau of Economic Research, n.d.). Child behaviors can be categorized
into internalizing and externalizing behaviors (Achenbach & Edelbrock, 1979). Internalizing
behaviors refer to negative and harmful behaviors directed to oneself (Burlaka et al., 2015),
including symptoms such as emotionally reactive, anxious/depressed, somatic complaints
and withdrawal (Achenbach, 1991). Chronic and untreated internalizing behaviors may lead
to more serious problems across time, such as suicide (Ceballos & Bratton, 2010). In
contrast, externalizing behaviors have been defined as harmful conduct toward others
(Burlaka et al., 2015), including symptoms such as aggression, rule-breaking and attention
problems (Achenbach, 1991). Unaddressed externalizing behaviors in early childhood are
related to violence, drug abuse, delinquency and antisocial personality disorders in later life
(Webster-Stratto & Reid, 2003). While Latinx children are at risk for socioemotional and
behavioral problems (Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002), mental
healthcare and services are largely underused by Latinx families due to cultural obstacles (i.e., religious matter, stigma), access barriers (i.e., Spanish-speaking provider) and health insurance barriers (Flores & Vega, 1998; Holloway, 2007).

In sum, examining the mechanisms of stress stemming from economic conditions and acculturation on child behaviors among low-income Latinx immigrant families in the rural Midwest can advance the knowledge base. In the meanwhile, it would provide important implications for practice and policy making.

**Theoretical Framework**

The family stress model (FSM) (Conger & Elder, 1994) has been used widely as a framework to understand the family stress process and its potential impacts on child behaviors (Jeon & Neppl, 2016; Landers-Potts et al., 2015; Masarik & Conger, 2017; Neppl et al., 2016; Ponnet, 2014; White et al., 2015). Although economic stress is the primary stress in the FSM, as indicated in Masarik and Conger’s (2017) review of the FSM, various environmental stressors can also be applied in this model. For example, White and colleagues (2015) extended the FSM by examining economic and neighborhood stressors and the joint impacts on youth adjustment via disruptions to parenting. Acculturative stress, an environmental stressor, is another important measure to incorporate in the FSM.

According to the FSM, environmental stress elevates parents’ risk for emotional distress. Over time, parents’ distress can lower their parenting ability and influence positive parenting practices, which in turn can impact child outcomes (e.g., emotions, behaviors).
Parents’ emotional distress can also indirectly influence parenting ability and practices through interparental relationships (e.g., marital conflict), and ultimately affect child outcomes.

**Current Study**

Guided by the family stress model, this study examined the structural relationships among stress (economic and acculturative stress), individual processes (maternal depressive symptoms, parenting competence), family process (family rituals), and child behaviors (internalizing, externalizing) among low-income Latinx immigrant families in rural communities in a rural Midwestern state. Conceptual models tested in this study are depicted in Figures 1a and 1b.

Based on the FSM, and a review of the previous literature, in model 1 (see Figure 1a), we hypothesized that economic pressure and acculturative stress would be: (1) directly related to maternal depressive symptoms; (2) directly and indirectly (through maternal depressive symptoms) related to parenting competence; (3) indirectly related to family rituals either through maternal depressive symptoms alone or together with maternal depressive symptoms and parenting competence; and (4) indirectly related to child behaviors through (a) maternal depressive symptoms alone, (b) maternal depressive symptoms and family rituals together, (c) maternal depressive symptoms and parenting competence together, (d) maternal depressive symptoms, parenting competence and family rituals together. For model 2 (see Figure 1b), we hypothesized similar structural relationship patterns.
Methods

Data and Sample

Data for this study were collected between 2013 - 2017 in five rural communities in a Midwestern state where the Latinx population is the largest minority group. Participants in this study were part of a larger study in the Midwestern state that was focused on the health and well-being of rural low-income Latinx families, and grew out of the multi-state USDA Hatch funded project, entitled, Rural Families Speak about Health (RFSH) (Mammen & Sano, 2018). The five rural communities ranged in population sizes from 1,424 to 10,768, and the percentage of the Latinx population in each community ranged from 7.4 % to 44.5 % (United States Census Bureau, 2016). To participate in the study, mothers had to meet the following criteria: (1) 18 years of age or older; (2) born in a Latin American country; (3) have an annual household income at or below 185% of the federal poverty level; (4) have at least one child 12 years of age or younger at the time of the first interview; and (5) reside in one of the study communities.

Two panels of data that included multiple time points were collected in the Midwestern state. Data were collected via in-person interviews conducted by trained Latina immigrant women in the study communities. Interviewers recorded participants’ responses in an online survey using Qualtrics. Panel 1 Time 1 (P1T1) consisted of survey responses from

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4 Some participants in this study were included in the RFSH project.
98 Latina immigrant mothers between 2010 - 2012. Due to changes in interviewers during the project, and difficulty reaching participants due to changes in participant cellphone numbers and addresses, annual follow-up interviews were not feasible with all participants. Approximately half (51%) of the mothers who participated in P1T1, participated in a second interview as part of Panel 1 Time 2 (P1T2) \((n = 50; 2013 - 2015)\). Panel 2, Time 1 (P2T1) consisted of data from 106 Latina who were interviewed from 2014 - 2017. Panel 2, Time 2 (P2T2) data collection was underway at the time of this study. The larger study and this study were approved by the associated University Institutional Review Board (IRB) (Appendix B).

The sample for this study \((n = 156)\) included mothers who responded to questions pertaining to acculturative stress, a measure that was introduced in P1T2, and included in P2T1. Therefore, this study combined data from P1T2 and P2T1 for a total sample size of 156. The participating mothers were 34.97 years of age on average \((SD = 8.96)\), and the majority \((n = 108; 75.0\%)\) had earned a high school diploma or GED, or had fewer years of formal education. The average length of time the mothers had lived in the U.S. and in the Midwestern state were 12.84 \((SD = 6.57)\) and 10.41 \((SD = 5.87)\) in years, respectively. About three quarters of the mothers \((n = 109; 74.7\%)\) reported that they had a co-parent. Mothers reported that their co-parents were spouses \((n = 83; 76.9\%)\), romantic partners \((n = 18; 16.7\%)\), child(ren)’s grandparent(s) \((n = 4; 3.7\%)\), or other relatives \((n = 3; 2.8\%)\). In regard to annual household income, less than half the mothers \((n = 55; 45.1\%)\) reported their annual household incomes were less than $20,000, or ranged between $20,000 - $40,000 \((n = 52; 40.0\%)\).
42.6%). Far fewer \((n = 15; 12.3\%)\) of the mothers reported annual household incomes above $40,000. The average number of children who lived in the same household as mothers was 2.53 \((SD = 1.32)\), and the average number of total people who lived in the same household as mothers was 5.66 \((SD = 7.9)\). The average age of the randomly selected child who is referred to as the focal child in the study, was 7.35 years old \((SD = 4.13)\). Over half \((n = 90; 57.7\%)\) of the focal children were boys.

**Data Collection**

**Recruitment.** Respondent driven sampling (RDS) (Heckathorn, 2002) was used to recruit mothers from a friendship network of existing members into the study. A bi-lingual Latina mother who resided in one of the study communities and who had strong communication skills and positive rapport with the Latino community was trained by the project director in recruitment and interview techniques for this study. First, she identified three mothers who potentially met the study criteria and invited them to participate in the study. Mothers who expressed interest in participating in the study completed an initial screening interview to ensure they met eligibility criteria for the study. Mothers provided written informed consent prior to completing the screening interview. The screening protocol included questions regarding age, household income, child age and county of residence etc. If a mother met eligibility criteria, she was invited to participate in a two-hour in-person interview. Upon completion of the interview, mothers were offered a $50 gift card to compensate them for their time and contributions to the study. Mothers were also provided
three fliers that contained information about the study and the interviewer’s contact information to distribute to other mothers in their networks who they believed met the study criteria. Mothers who received the fliers contacted the interviewer if they were interested in participating in the study and then completed the screening process. Mothers continued to be recruited into the study until the time period for data collection had ended.

**Interviews.** The interviews were conducted in the mothers’ homes or in a private conference room at the local extension office or library. During the interview, the interviewer read each question to the mother aloud and then typed the answers into a computer template on a laptop. The interview protocol included demographic questions (e.g., mother’s age, education level, household income), and questions from standardized instruments to assess the stress, physical and mental health and well-being of the mothers and their families. Specific questions regarding the health and well-being, and behaviors of a randomly selected focal child in each family were also included. Interviews were conducted in either Spanish or English, based on the preference of each mother.

**Measures**

**Economic pressure.** A modified version of the Personal Financial Wellness Scale (Prawitz et al., 2006) was used to assess economic pressure. Mothers were asked to respond to eight items using a 5-point Likert scale. The first two items assessed the level of financial stress “today” and financial stressful feelings “in general.” Response options ranged from 1 (very low) to 5 (very high). The next two items asked about satisfaction and feelings about
one’s financial situation. Likert-scale responses ranged from 1 (completely dissatisfied) to 5 (completely satisfied) and reverse coded into 1 (completely satisfied) to 5 (completely dissatisfied). These were followed by three items about difficulty in making ends meet. Response options were from 1 (never) to 5 (very frequently). The last item was about the confidence of finding money to pay for a financial emergency that costs about $100. Likert-scale responses ranged from 1 (highly doubtful) to 5 (highly confident) and further reverse coded into 1 (highly confident) to 5 (highly doubtful). All the 8 items were summed together, and a higher score indicated a higher level of perceived economic pressure. The Cronbach’s alpha coefficient is .83 for this sample.

**Acculturative stress.** The abbreviated Hispanic Stress Inventory-Immigrant Version (HSI-I; Cavazos-Rehg, Zayas, Walker, & Fisher, 2006) was used to assess the perceived stress that related to the acculturation. Seventeen statements were asked, including the hassles that arise within the family context covering the conflicts associated with parental, familial and marital responsibilities (e.g., “I have felt that my children's ideas about sexuality are too liberal”) and stresses that arise outside the family context covering occupational/economical and immigration challenges (e.g., “Because of my poor English people have treated me badly”). First, mothers were asked to indicate whether they had experienced the stressful situation during the past three months (Yes or No). If the mother’s response was “Yes,” then she rated how worried or tense it was for each stressful situation on a 5-point Likert scale ranging from 1 (not at all worried/tense) to 5 (extremely
worried/tense). If her response was “No,” then the follow-up question was coded as 0. Total scores of the acculturative stress within the family context and outside the family context were calculated separately first, and then summed together. A higher score indicated a higher level of acculturative stress perceived by the mother. The Cronbach’s alpha coefficient is .78 for this sample.

Maternal depressive symptoms. A shortened form (Andersen, Malmgren, Carter, & Patrick, 1994) of the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) was used to assess the mothers’ depression-related symptoms. Mothers were asked to give responses to 10 statements based on a 4-point Likert scale ranging from 0 (Rarely or none of the time) to 3 (all the time). Example statements included “I was bothered by things that usually don’t bother me,” and “I was lonely.” Responses of the two positive statements, “I felt hopeful about the future” and “I was happy” were reverse coded as 0 (all the time) to 3 (rarely or none of the time). Because the item “I felt hopeful about the future” had negative corrected item-total correlation value after the reverse coding, indicating this item did not work well for our sample, it was omitted for this study. All the remaining nine items were summed together, with higher scores indicating higher levels of maternal depressive symptoms. Cronbach’s alpha coefficient was .82 for this sample.

Parenting competence. A modified version of the Parenting Sense of Competency Scale (Gibaud-Wallston & Wandersman, 1978) was used to assess mothers’ perceptions of their competence in parenting. This study used the 11 items from the two subscales (6-item
satisfaction and 5-item efficacy) suggested by Gilmore and Cuskelley (2008) who used a normative sample instead of clinical sample to evaluate the scale. Example statements included “Sometimes I feel like I’m not getting anything done” and “I meet my own personal expectations for expertise in caring for my child.” Mothers were asked to respond to each statement using a 6-point Likert scale ranging from 1 (strongly agree) to 6 (strongly disagree). Responses for five positive statements (e.g., “If anyone can find the answer to what is troubling my child, I’m the one”) were reverse coded as 1 (strongly disagree) to 6 (strongly agree). A total score of the 11 items was created for each mother, with a higher score indicating a higher level of satisfaction and efficacy in her parenting. The Cronbach’s alpha coefficient is .63 for this sample.

Family rituals. An adapted version of the Family Rituals Questionnaire (Fiese & Kline, 1993) was used to assess mothers’ perceptions of family rituals. Family rituals are broad, abstract and complex, including different settings (e.g., dinner, weekend, annual celebrations) and dimensions (e.g., roles, attendance, affective). Similar to what Fiese and her colleagues (2002) did in their study, we refined this measure by using two subscales-symbiotic and affective embedded in multiple settings (e.g., weekend, vacations, family celebrations)- for our study. A total of five items (three items assessing symbolic and two items assessing affective) were used. Example items included “Spending time together over the weekend has special meaning for our family” and “Family members really enjoy and look forward to religious holidays.” Mothers answered these items using response options
including 1 (not true of our family), 3 (sometimes true of our family) and 5 (very true of our family). The responses were further recoded as 0 (not true of our family), 1 (sometimes true of our family) and 2 (very true of our family). A total score of the 5 items was created for each mother, with a higher score indicating a perception of stronger family rituals. The Cronbach’s alpha coefficient is .56 for this sample.

**Child internalizing and externalizing behaviors.** The Child Behavior Checklist 18 months - 5 years (CBCL 1½ - 5) (Achenbach & Rescorla, 2000) and the Child Behavior Checklist 6 - 18 years (CBCL 6 - 18) (Achenbach & Rescorla, 2001) were used to assess internalizing and externalizing behaviors of focal children in this study reported by mothers. Example items of internalizing behaviors were “Feelings are easily hurt,” and “Too shy or timid.” Example items of externalizing behaviors were “Gets in many fights,” and “Drinks alcohol without parents' approval.” Mothers were asked to give responses to these items using a 3-point Likert scale ranging from 0 (not true) to 2 (very true or often true). Raw scores of the internalizing and externalizing behaviors were computed first by summing the corresponding items. Then, they were converted into normative T scores based on the Achenbach scoring protocol. A higher score indicated a greater degree of internalizing and externalizing behavior problems. T scores with values more than 64 are considered in the clinical range and may be referred for professional mental health evaluation (Achenbach & Rescorla, 2000).
Control variables. This study combined data from two panels. Thus, panel was included as a control variable and coded as 0 = panel 1 time 2 (P1T2) and 1 = panel 2 time 1 (P2T1). Additionally, child age group was included as a control variable with 0 = 1.5 - 5 years of age and 1 = 6 - 18 years of age. Presences of a co-parent was included as the third control variable. The control variables were included to predict each endogenous variable.

Data Analyses

Means and standard deviations on the total sample characteristics and the study variables were first conducted using SPSS 24.0. Additionally, t-tests were conducted to identify whether differences existed for participants from panel 1 and panel 2, and for participants with younger focal children and with older focal children. Next, correlations among all study variables were calculated. Structural equation modeling (SEM) was conducted to test the hypothesized models (see Figure 1) using Mplus 7.0. Model fit and standardized path coefficients for the final models were reported. To test the indirect effects, 1000 bias corrected bootstrap sampling procedure was performed, and 95% confidence intervals were used to determine the specific indirect effects. Model fit was evaluated by Root Mean Square Error Approximation (RMSEA; good fit if value is below .05 and moderate fit if value is below .08) and Comparative Fit Index (CFI; good fit if value is above .95 and moderate fit if value is above .90).
Missing Data

The variables had 4.8% to 42.9% of the data missing: economic pressure (12.2%), acculturative stress (42.9% for stress within family; 39.5% for stress outside the family), maternal depressive symptoms (10.9%), parenting competence (21.1%), family rituals (4.8%), child internalizing behaviors (8.2%), and child externalizing behaviors (7.5%). Most of these variables involve a small number of missing items. For example, among 42.9% of the data missing in acculturative stress variable, 32% of them had one item missing (23.8%) and two items missing (8.2%); among 21.1% of the data missing in parenting competence, 17.6% of them had one item missing (12.2%) and two items missing (5.4%). Missing data were mostly due to questions that were not applicable for some participants or their children, and some participants who refused to answer some questions.

Mean substitution was first used to handle cases with at most two items missing when calculating the total scores for each study variable using the SPSS. Next, when conducting the SEM using the Mplus ($n = 143$), remaining missing data were addressed by Full Information Maximum Likelihood (FIML), a generally used and recommended missing data estimation approach (Duncan, Duncan, & Strycker, 2013) in SEM. This method enabled the use of all available data to estimate a likelihood function for each case and provided a more complete picture for all cases in the study (Schafer & Graham, 2002).
Results

Preliminary Analyses Results

Preliminary analyses were conducted to determine if there were significant differences between participants and their families of the two panels. Results indicated mothers in P2T1 reported significantly more economic pressure ($M = 24.75$), depressive symptoms ($M = 4.44$) and child externalizing behaviors ($M = 46.26$) than mothers in P1T2 ($M = 20.84, M = 2.72, M = 42.65$, respectively). No other significant differences were found between the two panels (Table 1).

Gender and age normed T scores which assessed child internalizing and externalizing behaviors were calculated for each age group (1½ - 5 and 6 - 18) separately. Therefore, $t$-tests were performed to identify if there were significant differences between mothers and their families with younger focal children (1½ - 5 years of age) and those with older focal children (6 - 18 years of age). As presented in Table 2, the child’s gender for mothers with older focal children was more likely to be male, whereas for mothers with younger focal children it was more likely to be female. Mothers who had older focal children were significantly older. In regards to the study variables, mothers with older focal children reported significantly higher levels of child internalizing behaviors ($M = 49.95$) than mothers with younger focal children ($M = 45.23$). No other significant differences were found between the mothers with two age groups of children. Based upon above preliminary results, panel and child age group were controlled for when estimating our models.
Correlations

Table 3 presents the correlation results among the study variables, which were all in the expected directions. For example, acculturative stress correlated positively with maternal depressive symptoms, negatively with parenting competence, and positively with child internalizing and externalizing behaviors. Maternal depressive symptoms correlated negatively with parenting competence and positively with child internalizing and externalizing behaviors. Parenting competence was positively associated with family rituals. Family rituals was negatively related to child externalizing behaviors. Unexpected findings included not statistically significant relationship between maternal depressive symptoms and family rituals, and family rituals and child internalizing behaviors.

Testing the Causal Models

Figures 2a shows the final model results on child internalizing behaviors. Standardized path coefficients were calculated to determine the strength of the relationships in the model. As shown in Figure 2a, the model indicated a good fit to the data, $\chi^2(2) = .029, p = .985$, RMSEA = .000 and CFI = 1.000. Significant direct paths were found between: (1) economic pressure and maternal depressive symptoms ($\beta = .204, p < .05$); (2) acculturative stress and maternal depressive symptoms ($\beta = .371, p < .001$); (3) maternal depressive symptoms and parenting competence ($\beta = -.202, p < .05$); (4) acculturative stress and parenting competence ($\beta = -.216, p < .05$); (5) parenting competence and family rituals ($\beta = .177, p < .05$); (6) acculturative stress and child internalizing behaviors ($\beta = .470, p < .001$);
and (7) maternal depressive symptoms and child internalizing behaviors ($\beta = .000, p < .05$).

For the paths from control variables to the endogenous variables, only when predicting the endogenous variable family rituals, presences of a co-parent was positive and significant ($\beta = .298, p < .001$). No significant associations were found for other paths from controls to endogenous variables. Significant indirect relations were found from (1) Economic pressure $\rightarrow$ maternal depressive symptoms $\rightarrow$ child internalizing behaviors ($b = .079, 95\% \text{ CI} [.010, .215]$) and (2) Acculturative stress $\rightarrow$ maternal depressive symptoms $\rightarrow$ child internalizing behaviors ($b = .078, 95\% \text{ CI} [.007, .203]$). The model accounted for 26.1% of the variance in maternal depressive symptoms, 14.1% of the variance in parenting competence, 12.0% of the variance in family rituals and 38.5% of the variance in child internalizing behaviors.

Figure 2b shows the final model results on child externalizing behaviors. The model indicated a good fit to the data, $\chi^2(2) = .026, p = .987$, RMSEA = .000 and CFI = 1.000. In comparison to Figure 2a results, the path between maternal depressive symptoms and child externalizing behaviors was not significant ($\beta = .064, p > .05$), but the path between family rituals and child externalizing behaviors was significant ($\beta = -.183, p < .05$). For the paths from control variables to the endogenous variables, similarly, only when predicting the endogenous variable family rituals, presences of a co-parent was positive and significant ($\beta = .296, p < .001$). No significant associations were found for other paths from controls to endogenous variables. The following significant indirect effects were found: (1) Economic
pressure → maternal depressive symptoms → parenting competence → family rituals → child externalizing behaviors ($b = .002, 95\% \text{ CI} [.000, .014]$); (2) Acculturative stress → parenting competence → family rituals → child externalizing behaviors ($b = .006, 95\% \text{ CI} [.000, .029]$); and (3) Acculturative stress → maternal depressive symptoms → parenting competence → family rituals → child externalizing behaviors ($b = .002, 95\% \text{ CI} [.000, .011]$). The model accounted for 26.3% of the variance in maternal depressive symptoms, 14.2% of the variance in parenting competence, 12.2% of the variance in family rituals and 19.9% of the variance in child externalizing behaviors.

**Discussion**

The dramatic and continued growth of the Latinx population in rural Midwestern communities has led to a growing body of research focused on understanding the life experiences, and factors that affect the health and well-being of Latinx children and their families in these communities. This study, guided by the family stress model, investigated processes at the individual and family levels that may influence the relationship between specific stressors that low-income Latinx immigrant families typically experience (economic pressure and acculturative stress) and child behaviors. The sample for this study was based on data collected from Latinx immigrant families in five rural communities in a Midwestern state.

Findings from this study confirmed the significant roles of individual and family processes in helping to explain the relationships between stressors (economic pressure and
acculturative stress) and child behaviors among low-income Latinx immigrant families in rural Midwestern communities. First, both economic pressure and acculturative stress were found to directly relate to maternal depressive symptoms. More specifically, the higher levels of economic pressure and acculturative stress experienced by the mothers were associated with higher levels of their depressive symptoms, which is consistent with previous studies (Dennis et al., 2003; Zeiders et al., 2015).

Second, acculturative stress was found to be both directly and indirectly related to parenting competence, while economic pressure only indirectly related to parenting competence through maternal depressive symptoms. This finding suggests that economic pressure does not affect mothers’ parenting beliefs and confidence to successfully raise their children unless mothers have depressed moods due to the stress from economic conditions. In contrast, acculturative stress affects mothers’ competence regardless if maternal depressive symptoms are present or not. One possible explanation of this finding is that economic pressure and acculturative stress are different in some aspects even through both economic pressure and acculturative stress are stressful feelings that the mothers experienced. Stress manifested from acculturation is more complex and can be at multiple levels, such as outside the family (e.g., discrimination) and within the family (e.g., acculturation gap between children and parents). Studies have shown that Latina mothers who experienced stress due to differences in acculturation among family members were more likely to report frustration and reduced confidence in parenting (Martinez, 2006).
Third, both economic pressure and acculturative stress were indirectly related to family rituals through maternal depressive symptoms and parenting competence, and not through maternal depressive symptoms alone. The finding regarding non-significant association between maternal depressive symptoms and family rituals was unexpected. Conceptually, in comparison to mothers who experience fewer depressive symptoms, mothers who have more depressive symptoms may be reluctant to initiate or become involved in family routines and rituals. This may be because doing so would require consistent and emotional investments in time, energy and resources. Prior studies suggested that parents’ characteristics (e.g., depressive symptoms) are factors that can compromise family mealtime routines (Dickstein et al., 1998; Spagnola & Fiese, 2007). Given the nature of the sample for this study, this finding is not surprising. In comparison to more acculturated counterparts (e.g., mothers who had resided in the U.S. for more than 10 years or had higher English proficiency), rural Latina immigrant mothers may adhere more strongly to their traditional cultural values. Familism/familismo is the core value in Latinx culture, which promotes loyalty to family and places primacy of family over individual needs and desires, regardless of country of origin (Halgunseth, Ispa, & Rudy, 2006). Influenced by the culture, the Latinx mothers are more likely to maintain the family rituals even though they experience depressive symptoms. While maternal depressive symptoms did not influence family rituals directly in this study, it indirectly influenced family rituals via parenting competence. Maternal depressive symptoms and parenting competence include mothers’ experiences and
judgments about herself. In contrast, parenting-competence is questioning one’s beliefs and confidence in successfully raising a child(ren). When parenting competence is disrupted due to the depressive symptoms, it may be difficult for mothers to maintain the family rituals.

Fourth, findings revealed that child internalizing behaviors were indirectly influenced by economic pressure and acculturative stress via an individual process (maternal depressive symptoms). Thus, stress from one’s environment (e.g., economic conditions, acculturation) may place mothers at risk for depression and children who were parented by depressed mothers were more likely to have emotional problems (Reck, Nonnenmacher, & Zietlow, 2016). In regards to child externalizing behaviors, this study revealed that both individual and family processes matter. More specifically, higher levels of stress experienced by mothers due to economic disadvantages and acculturation, were associated with more maternal depressive symptoms, which in turn were associated with lower parenting competence. Mothers who had lower parenting competence were less likely to practice family rituals. Children living in households with less practiced family rituals were associated with more externalizing behaviors. A potential explanation for these findings is that child externalizing behaviors may be more reactive than child internalizing behaviors to the cumulative effects of contextual stressors (economic and acculturative) through the more proximal stress of mothers’ psychological distress, low parenting competence and disruption of family rituals. For example, mothers may become less involved in monitoring and supervising their children, or use harsh parenting practices due to the more proximal stress
such as maternal depression. Children who experience harsh parenting and less monitoring or supervision, may in turn be at higher risk for externalizing behavior problems (Garcia, Manongdo, & Ozechowski, 2014; Roche, Ghazarian, Little, & Leventhal, 2011). In addition, family is expected to be the primary source of instrumental and emotional support in Latinx culture (Halgunseth et al., 2006). When family rituals are disrupted, mothers and children lose opportunities to benefit from emotional and behavioral supports that are provided through the practice of family rituals. Thus, children may be at even higher risk for externalizing problem behaviors. Lastly, similar to the findings from Zeiders and colleagues (2016), this study found a direct link between acculturative stress and child internalizing and externalizing behaviors. This finding re-emphasizes the broad, direct and indirect impacts of acculturative stress on Latinx immigrant mothers, their children, and functioning of their families.

**Strengths of the Study**

A major strength of this study is the inclusion of an understudied but fast-growing minority population residing in the rural Midwest - low-income Latinx immigrant families with children. Additionally, the use of structural equation modeling (SEM) allows a simultaneous analysis of the relationships among multiple stressors, individual and family processes, and child behaviors among rural low-income Latinx immigrant families. Furthermore, findings from this study expand the knowledge of the contextual stress process on child behaviors by considering an additional contextual stressor specific to acculturation
(i.e., acculturative stress), and a mediator at the family level (i.e., family rituals). More specifically, this study affirmed the significant roles that individual (e.g., maternal depressive symptoms) and family processes (e.g., family rituals) play between contextual stress (e.g., economic pressure, acculturative stress) and rural low-income Midwestern Latinx children’s externalizing behaviors.

**Limitations and Implication for Future Research**

Some limitations are important to acknowledge in this study. First, data for this study were collected from rural Latina immigrant mothers in one Midwestern state, and the sample size was relatively small, which limits the generalizability of the findings. Second, data in this study are based solely on mothers’ self-report, which could enter bias into the study. For example, mothers who have mental health concerns (e.g., psychological distress) tend to report higher levels of behavior problems of their children than do mothers without mental health concerns (Najman et al., 2000). Third, the cross-sectional design of this study limits the causal and directional inferences made from the findings. Fourth, parenting behaviors, a key mediator in the family stress model, was not included in this study. Although parenting competence was included, the only parenting related variable included in the study was different from parenting behaviors. Lastly, there was low reliability of the parenting competence and family rituals measures in this study. This may be due to the small sample size in the study, and the use of an adapted version of the family rituals measure that included
a small number of items for each subscale. Another possible reason is that the measures may not work well for a rural Latinx sample.

Future research may consider including a larger and broader sample of Latinx immigrant mothers and their families in the Midwest. Such a sample could include Latina mothers who were born in the U.S., as well as Latina mothers who were not born in the U.S. Future research could also incorporate data collected from other family members (e.g., fathers, other adults living in the home such as grandparents) and use multiple data collection techniques (e.g., observation, in-depth interviews) to assess and understand constructs examined in this study (e.g., family rituals, child behaviors). Additionally, longitudinal studies are needed to confirm the causation and directionality of relationships of key constructs in the study. Moreover, future studies elaborating the FSM model should examine a more complete stress process model that includes the parenting behaviors. Furthermore, measures of parenting competence and family rituals, which more accurately reflect these constructs among low-income Latinx immigrant families are needed. Besides testing family rituals as a mediator to help explain a stress process (Hawkins, 1997), some previous studies also demonstrated family rituals as a protective factor (i.e., moderator) for families who are faced with stress (Markson & Fiese, 2000). Thus, future research on family stress process and rural child behavior outcomes may also want to examine the moderation effect of family rituals of the stress effects.
Implications for Practice and Policy

Despite these limitations, this study provides a first look at how individual processes (maternal depressive symptoms, parenting competence) and family processes beyond the dyadic focus (family rituals), can help explain relations between multiple stressors and child problem behaviors among an understudied population - low-income, Latinx families residing in rural Midwestern communities. Intervention and prevention programs that promote positive family functioning and children’s emotional and behavioral well-being among rural low-income Latinx families may consider utilizing findings from this study. For example, existing programs or services in rural communities can help parents identify available and affordable mental health resources and services (Greder et al., 2017), and focus on improving parenting knowledge and skills to strengthen parenting competence. Given the significant role of family rituals in the stress process on child externalizing behaviors, programs serving rural, low-income Latinx families may consider incorporating family rituals to help families: (1) increase awareness of family rituals as an asset for children and family well-being; (2) increase awareness of potential challenges and changes to family rituals due to migration to the U.S.; and (3) identify different ways to preserve families’ cultures of origin and further develop family rituals while residing in the US.

Moreover, given the direct association between mothers’ acculturative stress and their children’s behaviors in this study, practices and policies that aim to reduce Latinx immigrant mothers’ acculturative stress may be particularly useful. Administrators of existing rural
programs and services may want to develop efficient and effective tools to assess the stress levels that rural Latinx parents experience due to acculturation. Furthermore, practitioners can help Latinx mothers and their families become aware of the acculturation process and related potential challenges to individuals and families, and help them identify effective strategies to cope with acculturative stress. Additionally, practitioners can assist families in increasing their knowledge of U.S. norms and policies, and learn how to navigate various systems (e.g., education, health care, social support). Structural level changes may also lead to acculturative stress (e.g., discrimination) which is embedded in societal structures (Yoshikawa, Weiland, Ulvestad, Perreira, & Crosnoe, 2014). For example, media and the public at large can help advocate for diversity and inclusiveness and report positive views and acceptance of Latinx families in different settings (e.g., workplaces, schools, health care settings) to reduce racism, prejudice and discrimination (Lorenzo-Blanco et al., 2016). Government and non-government agencies can provide more culturally responsive resources and services to help families build trust with others in their communities and to identify coping strategies to manage acculturative stress. Furthermore, improving the financial well-being of Latinx immigrant families is of great importance. Direct strategies include advocating for equitable wages and benefits, and providing access to work-based income supplementation or assistance programs (Yoshikawa et al., 2012). Indirect strategies include assisting Latinx families broaden their social networks and build human capital (e.g., English proficiency, literacy, vocational training) (Lorenzo-Blanco et al., 2016).
References


Table 1. Differences between Panel 1 and Panel 2 Participants and Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total sample (n = 156)</th>
<th>Panel 1 (n = 50)</th>
<th>Panel 2 (n = 106)</th>
<th>t-score</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child age</td>
<td>7.35 (4.13)</td>
<td>8.02 (3.76)</td>
<td>7.04 (4.27)</td>
<td>1.39</td>
<td>.166</td>
</tr>
<tr>
<td>Child gender (1=male)</td>
<td>.58 (.50)</td>
<td>.66 (.48)</td>
<td>.54 (.50)</td>
<td>1.47</td>
<td>.146</td>
</tr>
<tr>
<td>Mother age</td>
<td>34.97 (8.96)</td>
<td>36.80 (7.82)</td>
<td>34.16 (9.35)</td>
<td>1.63</td>
<td>.105</td>
</tr>
<tr>
<td>Mother education</td>
<td>3.08 (1.96)</td>
<td>2.82 (1.70)</td>
<td>3.20 (2.07)</td>
<td>-1.08</td>
<td>.284</td>
</tr>
<tr>
<td>Presence of a co-parent (1=presence of a co-parent)</td>
<td>.75(.44)</td>
<td>.87(.34)</td>
<td>.69(.47)</td>
<td>2.73</td>
<td>.007**</td>
</tr>
<tr>
<td>Family income</td>
<td>4.80 (2.85)</td>
<td>5.42 (2.03)</td>
<td>4.56 (3.07)</td>
<td>1.79</td>
<td>.076</td>
</tr>
<tr>
<td>Economic pressure</td>
<td>23.94 (5.94)</td>
<td>20.84 (5.88)</td>
<td>24.75 (5.47)</td>
<td>-3.91</td>
<td>.000***</td>
</tr>
<tr>
<td>Acculturative stress</td>
<td>8.89 (10.98)</td>
<td>6.98 (7.44)</td>
<td>9.71 (12.13)</td>
<td>-1.66</td>
<td>.100</td>
</tr>
<tr>
<td>Maternal depressive symptoms</td>
<td>3.87 (4.10)</td>
<td>2.72 (3.97)</td>
<td>4.44 (4.07)</td>
<td>-2.41</td>
<td>.017*</td>
</tr>
<tr>
<td>Parenting competence</td>
<td>47.48 (6.75)</td>
<td>48.89 (4.79)</td>
<td>46.86 (7.38)</td>
<td>1.98</td>
<td>.050</td>
</tr>
<tr>
<td>Family rituals</td>
<td>12.50 (2.07)</td>
<td>12.63 (2.13)</td>
<td>12.45 (2.06)</td>
<td>.479</td>
<td>.633</td>
</tr>
<tr>
<td>Child internalizing behaviors</td>
<td>48.12 (11.31)</td>
<td>46.20 (10.49)</td>
<td>48.92 (11.59)</td>
<td>-1.28</td>
<td>.202</td>
</tr>
<tr>
<td>Child externalizing behaviors</td>
<td>45.21 (9.30)</td>
<td>42.65 (7.58)</td>
<td>46.26 (9.76)</td>
<td>-2.09</td>
<td>.038*</td>
</tr>
</tbody>
</table>

Note. Education ranging from 1=8th grade or less, 2=some high school, 3=high school… 9=graduate degree; family income ranging from 1=$4,999 or less, 2=$5,000 - 9,999, 3=$10,000 - $14,999; 4=$15,000 - $19,999…11=$50,000 or more. *p < .05, ***p < .001
Table 2. Comparison between Families with Younger Focal Children (n=55) and Families with Older Focal Children (n=101)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Families with younger children (n=55) M (SD)</th>
<th>Families with older children (n=101) M (SD)</th>
<th>t-score</th>
<th>Sig.(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age</td>
<td>2.91 (1.57)</td>
<td>9.77 (2.88)</td>
<td>-19.28</td>
<td>.000***</td>
</tr>
<tr>
<td>Child gender (1=male)</td>
<td>.45 (.50)</td>
<td>.64 (.48)</td>
<td>-2.31</td>
<td>.022*</td>
</tr>
<tr>
<td>Mother age</td>
<td>30.28 (6.20)</td>
<td>37.73 (9.22)</td>
<td>-5.23</td>
<td>.000***</td>
</tr>
<tr>
<td>Mother education</td>
<td>3.44 (2.04)</td>
<td>2.87 (1.89)</td>
<td>1.72</td>
<td>.087</td>
</tr>
<tr>
<td>Presences of a co-parent (1=presence of a co-parent)</td>
<td>.76(.43)</td>
<td>.74(.44)</td>
<td>.268</td>
<td>.789</td>
</tr>
<tr>
<td>Family income</td>
<td>4.57(2.67)</td>
<td>4.91 (2.94)</td>
<td>-.63</td>
<td>.532</td>
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<td>Economic pressure</td>
<td>23.64 (6.71)</td>
<td>24.12 (5.47)</td>
<td>-.47</td>
<td>.642</td>
</tr>
<tr>
<td>Acculturative stress</td>
<td>6.99 (12.25)</td>
<td>10.01 (10.06)</td>
<td>-1.61</td>
<td>.109</td>
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<td>Maternal depressive symptoms</td>
<td>3.23 (3.57)</td>
<td>4.23 (4.35)</td>
<td>-1.41</td>
<td>.162</td>
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<tr>
<td>Parenting competence</td>
<td>48.42 (6.25)</td>
<td>46.94 (6.99)</td>
<td>1.28</td>
<td>.201</td>
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<tr>
<td>Family rituals</td>
<td>12.36 (2.27)</td>
<td>12.58 (1.96)</td>
<td>-.62</td>
<td>.539</td>
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<tr>
<td>Child internalizing behaviors</td>
<td>45.23 (12.68)</td>
<td>49.95 (10.00)</td>
<td>-2.43</td>
<td>.017*</td>
</tr>
<tr>
<td>Child externalizing behaviors</td>
<td>43.85 (9.66)</td>
<td>46.06 (9.02)</td>
<td>-1.36</td>
<td>.176</td>
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*p < .05, **p < .01, ***p < .001
Table 3. Correlations among all Variables

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<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>1. Economic pressure</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Acculturative stress</td>
<td></td>
<td>.287**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Depressive symptoms</td>
<td></td>
<td></td>
<td>.353**</td>
<td>.450**</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4. Parenting competence</td>
<td>-.085</td>
<td></td>
<td>-.308**</td>
<td>-.305**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Family rituals</td>
<td>-.063</td>
<td></td>
<td>-.046</td>
<td>-.066</td>
<td>.171*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Child internalizing behaviors</td>
<td></td>
<td></td>
<td>.149</td>
<td>.565**</td>
<td>.420**</td>
<td>-.249**</td>
<td>.018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Child externalizing behaviors</td>
<td></td>
<td></td>
<td></td>
<td>.055</td>
<td>.326**</td>
<td>.229**</td>
<td>-.210*</td>
<td>-.195*</td>
<td>.606**</td>
<td></td>
</tr>
<tr>
<td>8. Panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.322**</td>
<td>.114</td>
<td>.197*</td>
<td>-.139</td>
<td>-.040</td>
<td>.110</td>
</tr>
<tr>
<td>9. Child age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.039</td>
<td>.133</td>
<td>.116</td>
<td>-.106</td>
<td>.051</td>
<td>.204*</td>
</tr>
<tr>
<td>10. Presences of a co-parent</td>
<td>-.243**</td>
<td></td>
<td>-.073</td>
<td>-.136</td>
<td>.033</td>
<td>.287**</td>
<td>.000</td>
<td>-.108</td>
<td>-.199*</td>
<td>-.022</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001
Figure 1a. Conceptual model 1a examining the stress process on internalizing behaviors among low-income Latinx children in rural Midwest.

Figure 1b. Conceptual model 1b examining the stress process on externalizing behaviors among low-income Latinx children in rural Midwest.
Figure 2a. Results of model 1a, $\chi^2(2) = .029, p = .985$; RMSEA = .000; CFI = 1.000. Standardized path estimates were shown. Data collection panel, young or old child and presences of a co-parent were control variables. *$p < .05$, **$p < .01$, ***$p < .001$. 
Figure 2b. Results of model 1b, $\chi^2(2) = .026, p = .987$; RMSEA = .000; CFI = 1.000. Standardized path estimates were shown. Data collection panel, young or old child and presences of a co-parent were control variables. *$p < .05$, **$p < .01$, ***$p < .001$. 
CHAPTER 4. DISCUSSION

Overview

The purpose of this dissertation was to examine the relations among contextual stress, individual and family processes, and child behavior outcomes among low-income families in rural America. Two studies were included in this dissertation. The first study (Chapter 2) investigated whether or not family rituals serve as another mediator in the economic stress process that involves maternal depressive symptoms and co-parenting alliance on child internalizing and externalizing behaviors among rural, low-income families who have children across multiple states. The second study (Chapter 3) examined how economic pressure, coupled with acculturative stress, influenced child behaviors (i.e., internalizing and externalizing) through maternal depressive symptoms, parenting competence and family rituals among low-income Latinx immigrant families who resided in rural Midwestern communities. Findings from these two studies confirm the significant roles that individual and family processes play in the relationship between stress and child behaviors among rural low-income families. Additionally, findings highlight the importance of including family variables that go beyond a dyadic focus in studies, and of particular interest that encompass the process among the whole family (e.g., family rituals) to explain the family stress process on behavior outcomes among rural children. Moreover, findings indicate important considerations of additional cultural relevant stressor when conducting research with rural minority families (e.g., Latinx).

Family Stress Model

The family stress model (FSM) provides a framework to understand influences of contextual stressors on behaviors of rural low-income children by examining the roles of
individual and family processes. As posited by the FSM (Conger & Elder, 1994), economic hardship creates economic pressure, which in turn elevates the risk for parents experiencing emotional distress. Over time, parents’ emotional distress lowers parenting ability and influences positive parenting practices, and eventually impact child behaviors. Parents/caregivers’ emotional distress can also indirectly influence parenting ability and practices through interparental relationships (e.g., marital conflict). As demonstrated in the first study, economic pressure was associated with maternal depressive symptoms, which in turn was linked to poor co-parenting alliance (marginally significant). Similarly, the second study found economic pressure was linked to maternal depressive symptoms, which in turn lowered parenting competence. Meanwhile, both studies elaborated the FSM model by adding a family level variable that measured processes related to the whole family, namely family rituals. The second study supported family rituals as a mediator in the stress process on child behaviors. More specifically, stress would indirectly affect externalizing behaviors of rural Latinx immigrant children via maternal depressive symptoms, parenting competence and family rituals. The first study fails to provide the support for family rituals as a mediator. More specifically, whether stress (i.e., economic pressure) can indirectly affect externalizing behaviors among rural children in general through maternal depressive symptoms, co-parenting alliance and family rituals warrants further examination. It may be due to the limited accuracy of the adjustment of data non-independence. It is also possible that the exclusion of parenting relevant variables (which were not asked in the dataset) in the model may account for the lack of support in family rituals as a mediator in general rural sample. In addition, when researching on rural low-income families of Latinx origin, the second study added a culturally relevant stressor, namely acculturative stress. Findings suggest that
acculturative stress has indirect effects on child externalizing behaviors through maternal depressive symptoms, parenting competence and family rituals, and indirect effects on child internalizing behaviors through maternal depressive symptoms. However, findings also suggest direct effects of acculturative stress on both child internalizing and externalizing behaviors. These two studies provide empirical evidence, albeit preliminary, to support the extension and elaboration of the FSM in ways that include a mediator at the whole-family level and a contextual stressor specific to culture.

**Family Rituals**

The addition of family rituals to the family stress process on behavior outcomes among rural low-income children was a key focus of this dissertation. Defined as repeated practices involving two or more family members with the features of symbolic communication, time commitment and continuity across generations (Spagnola & Fiese, 2007), family rituals have been shown to play important roles in family and child well-being (Crespo, Kielpikowski, Pryor, & Jose, 2011; Fiese, 2006; Fiese, Foley, & Spagnola, 2006). In both studies, family rituals were found to predict lower child externalizing behaviors, but not child internalizing behaviors. One potential explanation of this finding may be the use of self-report data, in which mothers may underreport their children’s internalizing behaviors due to prejudice (e.g., stigma) in mental and emotional disorders in many rural communities (Gustafson, Preston, & Hudson, 2009). Another possibility is that different family members may not share the same views on family rituals (Fiese & Tomcho, 2001; Markson & Fiese, 2000). In other words, the rituals that mothers view as important may not be true for children, especially when rituals do not well reflect the changing needs of children (Eaker & Walters, 2002). Therefore, even though children may still be involved in family rituals and benefit
from these repeated family practices in the aspects of socialization and behaving in good manners (Spagnola & Fiese, 2007), they may not be able to benefit from rituals in the aspect of emotional well-being. Furthermore, multiple group analyses examined if the way that economic pressure affects rural low-income children’s behaviors through maternal depressive symptoms, co-parenting alliance and family rituals would vary by child age group. In the second study, child age group was included as a control variable when investigating the multiple stress process that involving maternal depressive symptom, parenting competence on rural low-income Latinx children’s behaviors. However, neither study provides evidence that the function of family rituals would differ by families with younger and older children. The potential explanation is that both studies assessed the meaning component of family rituals, rather than the other component (i.e., routines), which may be less likely to change as a child ages, especially from the perspective of mothers who generally promote and organize family rituals (Fiese, 1992).

Strengths and Limitations

Strengths

This dissertation focuses on an understudied population - low-income families with children residing in small towns and rural communities, which aligns with the renewed attention on family functioning and well-being in rural America. In addition, this dissertation elaborates the family stress model in a new way by adding a family process variable of particular interest to the whole family (i.e., family rituals), and examines the models among rural low-income families in general (Chapter 2) as well as rural low-income Latinx immigrant families in the Midwest (Chapter 3), who are the largest and fastest-growing minority group in rural areas. The study in Chapter 3 also includes an additional contextual
stressor (i.e., acculturative stress) and uniquely investigates the presence of both economic and acculturative stress on child internalizing and externalizing behaviors among rural low-income Latinx immigrant families through individual and family processes.

**Limitations**

It is important to note limitations of these studies when interpreting the findings. First, data in both studies were cross-sectional in nature, which preclude making causal inferences and specific ordering of the pathways specified in the model. For example, mothers may have more difficulty in engaging children in family rituals when children have behavior problems. Mothers who fail to build family rituals and find meaning from the regular family practices (e.g., assess them as enjoyable, important) may likely become depressed (Santos, Crespo, Canavarro, Alderfer, & Kazak, 2016). Negative moods of depressed mothers may spill over into their relationships with co-parents/caregivers, which in turn affects interparental relationships (Conger et al., 2002; Helms et al., 2014). Second, both studies used quantitative data which may limit in-depth understanding of the relationships. Third, both studies used mixed purposive sampling to intentionally recruit participants who are commonly under-represented in research and difficult to access. However, this sampling strategy may limit the generalizability of our findings. Fourth, the measures of interest (e.g., family rituals, child behaviors) were assessed from mothers’ perspectives, which could be biased. Lastly, the reliability of the family rituals and parenting competence measures were low for samples in the two studies which limits the accurate representation of the constructs.
Implications and Conclusion

Implications

Future research should include longitudinal studies to clarify causation and directionality of the relationships among contextual stress (e.g., economic pressure, acculturative stress), individual processes (e.g., maternal depressive symptoms), family processes (e.g., family rituals), and internalizing and externalizing behaviors among rural low-income children. Additionally, future research that incorporates qualitative or mixed methods may lead to greater understanding of these relationships. Furthermore, future studies could incorporate responses from other family members (e.g., fathers, grandparents) or other adults who have regular contact with children (e.g., teachers, day care providers) to gain multiple perspectives of the constructs measured, and to reduce bias from only one participant. Future studies could also include the full family rituals measure (Fiese & Kline, 1993) which demonstrated a higher reliability. Measures of parenting competence and family rituals that have been tested with the Latinx population and that have high reliability would also be helpful to include in future studies.

Policies and practice can be informed by the findings from this dissertation that suggest influences of individual processes and family processes on the emotional and behavioral well-being of rural, low-income children. For the individual process of maternal depression, policies and practice may consider a) increase rural low-income mothers’ literacy of maternal depression and help mothers have positive attitudes towards seeking treatment for depression, b) administer simple and valid screening tools to determine early if it is necessary to make a referral to a mental health professional, and c) provide affordable and accessible mental healthcare resources in rural areas. For the individual process - parenting
competence, policies and practice may consider increasing rural low-income families’ access to parenting resources related to child development, parent-child interaction and parenting related topics. For example, evidence-based home visiting programs (e.g., Parents as Teachers) have shown promising results in improving parenting competence, enhancing positive parenting practices and promoting child health (Paulsell, Avellar, Martin, & Del Grosso, 2010).

In regards to the family process - co-parenting alliance, parenting programs that engage more than one primary caregiver continue to be needed to focus on improving communication skills and joint parenting skills among co-parents (e.g., mother-father, mother-grandmother). In regards to the family process - family rituals, family-based programs that incorporate information and activities to a) increase awareness of family rituals as a family asset for child and family well-being, and b) help families learn how to rebuild or adapt family rituals during family transitions (e.g., migration) and adversity (e.g., poverty) could be beneficial in promoting positive child behaviors. Although the studies in this dissertation did not assess fathers’ perceptions of family rituals, it is important for practitioners to recognize that there may be differences in perceptions, and in importance of different dimensions of rituals, among fathers and mothers. Awareness of potential differences should be recognized when providing programs to families (Markson & Fiese, 2000).

Rural areas commonly encounter unique barriers to accessibility and availability of services (e.g., geographic isolation, stigma, and lack of family service professionals as well as culturally responsive services). Besides the traditional on-site support and services, professionals may also consider the use of technology to facilitate the reach and care for rura
families (Smalley, 2012). For example, professionals can use phones, emails, mobile devices, computer-based technologies and social media tools to bridge families in rural areas with practitioners (Smalley, 2012). When providing services to rural Latinx immigrant families, information and education that helps families cope with acculturative stress are warranted.

Conclusion

The two studies in this dissertation affirm and offer new insights into the significant roles that individual and family processes play in the relationship between contextual stressors (i.e., economic pressure, acculturative stress) and child behavior outcomes among rural low-income families. Family rituals may serve as an additional important mediating variable in the family stress process among rural low-income families with children. These findings provide a foundation for future research to continue elaborating the family stress process by considering additional mediating or moderating variables.
REFERENCES


## APPENDIX A. MEASUREMENTS

### Financial Constraints

<table>
<thead>
<tr>
<th>Question</th>
<th>Response options</th>
</tr>
</thead>
</table>
| In the past year, have you had a hard time paying for basic needs of your family? | 1 = Yes  
  5 = No |
| In the past year, have you had a hard time paying for medical care?       |                    |
| In the past year, have you had a hard time paying for dental care?        |                    |
| In the past year, have you had a hard time paying for medicines?          |                    |
| In the past year, have you had a hard time paying for credit payments?    |                    |
| In the past year, have you had a hard time paying for personal care items?|                    |
| In the past year, have you had a hard time paying for diapers?            |                    |
| In the past year, have you had a hard time paying for school fees or other school expenses? | |
| In the past year, have you had a hard time paying for gas for the car?    |                    |
| In the past year, have you had a hard time paying for other car-related expenses such as registration, insurance, repairs, or maintenance? | |
| In the past year, have you had a hard time paying for food?               |                    |
| In the past year, have you had a hard time paying for mortgage or rent?   |                    |

### Financial Distress

<table>
<thead>
<tr>
<th>Question</th>
<th>Response options</th>
</tr>
</thead>
</table>
| What is your level of financial stress today?                            | 1 = Very low  
  2 = Low  
  3 = Moderate  
  4 = High  
  5 = Very high |
| How much stress do you feel about your personal finances?                |                                       |
| How satisfied are you with your current financial situation?             | 1 = Completely dissatisfied  
  2 = Somewhat dissatisfied  
  3 = Neither satisfied or dissatisfied  
  4 = Somewhat satisfied  
  5 = Completely satisfied |
| How do you feel about your current financial situation?                  |                                       |
| How often do you worry about your financial situation?                  | 1 = Never  
  2 = Occasionally  
  3 = Sometimes  
  4 = Frequently  
  5 = Very frequently |
| How often do you find yourself just getting by financially and living paycheck to paycheck? | |
| How often do you want to go out to eat, go to a movie, or do something else and don't because you can't afford it? | |
| How confident are you that you could find the money to pay for a financial emergency that costs about $100? | 1 = Highly doubtful  
  2 = Doubtful  
  3 = Neither doubtful nor confident  
  4 = Confident  
  5 = Highly confident |
### Maternal Depressive Symptoms

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>I was bothered by things that don't usually bother me</td>
<td>0 = Rarely or none of the time</td>
</tr>
<tr>
<td>I had trouble keeping my mind on what I was doing</td>
<td>1 = Some or a little of the time</td>
</tr>
<tr>
<td>I felt depressed</td>
<td>2 = Occasionally or a moderate amount of time</td>
</tr>
<tr>
<td>I felt that everything I did was an effort</td>
<td>3 = All of the time</td>
</tr>
<tr>
<td>I felt hopeful about the future</td>
<td></td>
</tr>
<tr>
<td>I felt fearful</td>
<td></td>
</tr>
<tr>
<td>My sleep was restless</td>
<td></td>
</tr>
<tr>
<td>I was happy</td>
<td></td>
</tr>
<tr>
<td>I felt lonely</td>
<td></td>
</tr>
<tr>
<td>I could not get going</td>
<td></td>
</tr>
</tbody>
</table>

### Co-Parenting Alliance

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>The child enjoys being alone with other primary caregiver</td>
<td>1 = Strongly agree</td>
</tr>
<tr>
<td>During pregnancy or the adoption process, the other primary caregiver expressed confidence in my ability to be a good parent.</td>
<td>2 = Agree</td>
</tr>
<tr>
<td>When there is a problem with the child, we work out a good solution together.</td>
<td>3 = Not sure how I feel</td>
</tr>
<tr>
<td>The other primary caregiver and I communicate well about the child.</td>
<td>4 = Disagree</td>
</tr>
<tr>
<td>The other primary caregiver is willing to make personal sacrifices to help take care of the child.</td>
<td>5 = Strongly disagree</td>
</tr>
<tr>
<td>Talking to the other primary caregiver about our child is something I look forward to.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver pays a great deal of attention to the child.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver and I agree on what our child should and should not be permitted to do.</td>
<td></td>
</tr>
<tr>
<td>I feel close to the other primary caregiver when I see him or her play with the child.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver knows how to handle children well.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver and I are a good team.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver believes I am a good parent.</td>
<td></td>
</tr>
<tr>
<td>I believe the other primary caregiver is a good parent.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver makes my job of being a parent easier.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver sees the same way I do.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver and I would basically describe the child in the same way.</td>
<td></td>
</tr>
<tr>
<td>If the child needs to be punished, the other primary caregiver and I usually agree on the type of punishment.</td>
<td></td>
</tr>
<tr>
<td>I feel good about the other primary caregiver's judgement about what is right for the child.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver tells me I am a good parent.</td>
<td></td>
</tr>
<tr>
<td>The other primary caregiver and I have the same goals for the child.</td>
<td></td>
</tr>
</tbody>
</table>
### Family Rituals

<table>
<thead>
<tr>
<th>Question</th>
<th>Settings</th>
<th>Dimensions</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family members are expected to be home for dinner.</td>
<td>dinnertime</td>
<td>attendance</td>
<td>1 = Not true of our family</td>
</tr>
<tr>
<td>Family members are expected to attend and participate in annual celebrations</td>
<td>Annual celebrations</td>
<td></td>
<td>3 = Sometimes true of our family</td>
</tr>
<tr>
<td>Family members are expected to attend special celebrations</td>
<td>special celebrations</td>
<td></td>
<td>5 = Very true of our family</td>
</tr>
<tr>
<td>Family members are expected to attend and participate in these cultural events</td>
<td>cultural &amp; ethnic traditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spending time together over the weekend has special meaning for our family</td>
<td>weekend</td>
<td>symbolic significance</td>
<td></td>
</tr>
<tr>
<td>In our family, vacations are important events</td>
<td>vacations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural and ethnic traditions are very important to our family</td>
<td>cultural &amp; ethnic traditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family members really look forward to these celebrations</td>
<td>annual/special celebrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family members really enjoy and look forward to religious holidays</td>
<td>religious holidays</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Latinx Acculturative Stress (Immigrant Version)

<table>
<thead>
<tr>
<th>Question</th>
<th>Response options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I do not know enough English, it has been difficult for me to interact with others</td>
<td>1 = not at all worried/tense</td>
</tr>
<tr>
<td>My spouse and I have disagreed on how to bring up our children</td>
<td>2 = A little worried/tense</td>
</tr>
<tr>
<td>Because of my poor English people have treated me badly</td>
<td>3 = Moderately worried/tense</td>
</tr>
<tr>
<td>My children have not respected my authority the way they should</td>
<td>4 = Very worried/tense</td>
</tr>
<tr>
<td>Because I am Latino I have been expected to work harder</td>
<td>5 = Extremely worried/tense</td>
</tr>
<tr>
<td>My income has not been sufficient to support my family or myself</td>
<td></td>
</tr>
<tr>
<td>I have felt that my children's ideas about sexuality are too liberal</td>
<td></td>
</tr>
<tr>
<td>There has been physical violence among members of my family</td>
<td></td>
</tr>
<tr>
<td>My children have talked about leaving home</td>
<td></td>
</tr>
<tr>
<td>My children have received bad school reports (or bad grades)</td>
<td></td>
</tr>
<tr>
<td>I have had to watch the quality of my work so others do not think I am lazy</td>
<td></td>
</tr>
<tr>
<td>Because I am Latino I have difficulty finding the type of work I want</td>
<td></td>
</tr>
<tr>
<td>Because I am Latino it has been hard to get promotions or salary raises</td>
<td></td>
</tr>
<tr>
<td>I had serious arguments with family members</td>
<td></td>
</tr>
<tr>
<td>I have been forced to accept low paying jobs</td>
<td></td>
</tr>
<tr>
<td>There have been conflicts among members of my family</td>
<td></td>
</tr>
<tr>
<td>I have felt pressured to learn English</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Subscales</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age</td>
<td>satisfaction</td>
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<td></td>
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<tr>
<td>I go to bed the same way I wake up in the morning feeling I have not accomplished a whole lot</td>
<td></td>
</tr>
<tr>
<td>I do not know what it is, but sometimes when I’m supposed to be in control, I feel more like the one being manipulated</td>
<td></td>
</tr>
<tr>
<td>A difficult problem in being a mother is not knowing whether you’re doing a good job or a bad one</td>
<td></td>
</tr>
<tr>
<td>Sometimes I feel like I’m not getting anything done</td>
<td></td>
</tr>
<tr>
<td>Being a mother makes me tense and anxious</td>
<td>efficacy</td>
</tr>
<tr>
<td>I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good mother</td>
<td></td>
</tr>
<tr>
<td>I meet my own personal expectations for expertise in caring for my child</td>
<td></td>
</tr>
<tr>
<td>If anyone can find the answer to what is troubling my child, I am the one</td>
<td></td>
</tr>
<tr>
<td>Considering how long I’ve been a mother, I feel thoroughly familiar with this role</td>
<td></td>
</tr>
<tr>
<td>I honestly believe I have all the skills necessary to be a good mother to my child</td>
<td></td>
</tr>
</tbody>
</table>
The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Use only the approved study materials in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.

- Retain signed informed consent documents for 3 years after the close of the study, when documented consent is required.

- Obtain IRB approval prior to implementing any changes to the study.

- Inform the IRB if the Principal Investigator and/or Supervising Investigator end their role or involvement with the project with sufficient time to allow an alternate PI/Supervising Investigator to assume oversight responsibility. Projects must have an eligible PI to remain open.

- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.

- Stop all human subjects research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Human subjects research activity can resume once IRB approval is re-established.

- Submit an application for Continuing Review at least three to four weeks prior to the date for continuing review as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.