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Associations between economic distress and African-American adolescents' social competence: an examination of two models

Godwin Samuel Ashiabi
University of Tennessee

To the Graduate Council:

I am submitting herewith a dissertation written by Godwin Samuel Ashiabi entitled "Associations between economic distress and African-American adolescents' social competence: an examination of two models." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

Delores E. Smith, Major Professor

We have read this dissertation and recommend its acceptance:

Julia A. Malia, Mary Sue Younger, Dr. Schuyler Beck

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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Dr. Schuyler Huck

Accepted for the Council:

Vice Provost and
Dean of Graduate Studies

ASSOCIATIONS BETWEEN ECONOMIC DISTRESS AND AFRICAN-AMERICAN ADOLESCENTS' SOCIAL COMPETENCE: AN EXAMINATION OF TWO MODELS

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Godwin Samuel Ashiabi

May 2002

DEDICATION

This Dissertation is dedicated to all my family and friends.

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Writing this dissertation has made me more aware than ever of the interdependencies necessary to complete a complex task. In view of the above, it is with great gratitude, then, that I want to thank all the people who helped shape this thesis. First of all, I want to thank my advisor, Dr. Delores E. Smith, Department of Child and Family Studies, who was patient enough but encouraged me find my way through the academic maze. I would like to thank also the members of my doctoral committee, Dr. Julia A. Malia, Department of Child and Family Studies; Dr. Mary Sue Younger, Department of Statistics; and Dr. Schuyler Huck, Counseling and Deaf Education, for their support and suggestions. Many thanks goes to the generous folks at Radcliffe College[1] without whose assistance this project would not have come to fruition.

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This research used the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1963 data set [made accessible in 1992, machine readable data files]. These data were collected by S. Kellam, M. Ensminger, and J. Branch and are available through the archive of the Henry A. Murray Research Center of Radcliffe College, Cambridge, Massachusetts (Producer and Distributor).

ABSTRACT

This study, using the third wave of data from the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1966-1976, examined two models that focused on the processes through which economic distress impacts African-American adolescents' social competence. Only the responses of African-American participants and family types that included mothers were used, resulting in a total sample size of 840 families and four family types. The first model, Model A, examined the moderating roles of family structure and locus of control orientation on the associations among economic distress, maternal mood problems, and family processes, on African-American adolescents' antisocial behaviors and depression. Using path analysis with maximum likelihood estimation, I found that (a) the same structural model holds across family type and locus of control orientation; (b) the effects of maternal mood problems on adolescents' social competence differed by family type; (c) the effects of family processes on adolescents' social competence differed by family type; and (d) the effects of family processes on adolescents' social competence differed by locus of control orientation. The second model, Model B, examined the differential effects of adolescent temperament, gender, and family type on the associations among economic distress, maternal mood problems, family processes, association with deviant peers, and antisocial behaviors. Using path analysis with maximum likelihood estimation revealed that (a) the same structural model holds across temperament, gender; and family type; (b) the effects of family process on antisocial behaviors differed by temperament; (c) the effects of family processes on antisocial behaviors differed by family type; and (d) there were no gender differences evident.

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PART 1

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CHAPTER 1

General Overview

Economic distress is a risk factor that is associated with multiple negative outcomes for families and children (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Conger & Elder, 1994; Conger, Lorenz, Elder, Melby, Simons, & Conger, 1991; Conger, Rueter, & Conger, 1994; Elder, Eccles, Ardelt, & Lord, 1995; Hammond & Yung, 1994; McLoyd, 1990; McLoyd, Jayaratne, Ceballo, & Borquez, 1994; McLoyd & Wilson, 1991). The maladaptive effects associated with poverty for children include mood problems, antisocial behaviors, school failure and dropout, substance use and abuse, adolescent parenthood, and early violent death (Conger et al., 1992; Conger & Elder, 1994; Elder et al., 1995; Hammond & Yung, 1994; McLoyd et al., 1994; McLoyd, 1990; McLoyd & Wilson, 1991).

Various models have been proposed in the empirical literature suggesting processes through which family economic distress impacts children's social competence. The purpose of this study was to (a) explore three such models to find any existing gaps, (b) integrate their findings into two studies, and (c) examine familial and individual factors that might either mediate or moderate the observed relationships. The first model suggests an association between poverty and negative child outcomes. The findings in this domain suggest an unmoderated and indirect effect of economic distress on children's social competence, affecting children through parental mood problems and family processes (Ary et al., 1999; Conger et al., 1992; Halpem, 1990; McLoyd et al., 1994; Myers & Taylor, 1998). Generally, these investigators suggest that economic distress disrupts effective parenting and parental moods, resulting in aversive parent-child relationships that lead to internalizing and externalizing problems.

The second model linking poverty and children's social competence indicates that there is variability in families' response to economic distress and that child and family factors moderate

the association between economic distress and children's social competence (Cowen et al., 1992; Garmezy, Masten, & Tellegen, 1984; Luthar, 1991; Masten et al., 1988; Parker, Cowen, Work, & Wyman, 1990; Werner, 1985, 1990, 1993; Werner & Smith, 1982; Wyman et al., 1992; Wyman, Cowen, Work, & Kerley, 1993). Researchers in this area have reported findings that an internal locus of control and an affectively warm family relationship moderates the impact of economic distress to promote social competence.

Other investigators (e.g., 1998; Crick, 1996; Crick & Grotpeter, 1995; Gottfredson & Hirschi, 1990; Lytton, 1990; Salem, Zimmerman, & Notaro, 1998) have suggested that gender and temperament are differentially related to children's social competence. Whereas the empirical findings regarding the differential effects of temperament are unequivocal in the literature, the findings of some investigators (e.g., Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994; Huizinga, Esbensen, & Weiher, 1991) suggest that the correlates of social competence do not differ by gender. These results indicate that gender may or may not moderate children's social competence.

The third model proposes that not only does parenting and family process variables influence children's social competence, but peer relationships also have an influence on children's social competence. Findings in this area suggest that levels of affective interaction in the family (i.e., warmth or conflict) and parental monitoring and supervision influence the degree to which children associate with peers and thus children's social competence (Dishion, French, & Patterson,1995; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Gove & Crutchfield, 1982; Hanson, Hengeller, Haelele, & Rodick, 1994; Krohn, Stern, Thornberry, & Jang, 1990; Loeber & Hay, 1997; Smith & Stern, 1997; Snyder, Dishion, & Patterson, 1986). For example, children from conflict-ridden families are more likely to associate with peers because of weakened affective attachment and loose parental controls. Peer groups without adult supervision are more likely to engage in antisocial activities because the group models and reinforces such behaviors.

Organization of the Dissertation

The three models discussed above are integrated into two hypothesized models that are the object of this dissertation. In the first model, the differential effects of family type and locus of control on the associations among economic distress, maternal mood problems, family conflict, family warmth, adolescents' depression, and antisocial behaviors were examined. The second model explored whether adolescent temperament, gender, and family type moderate the associations among economic distress, maternal mood problems, family conflict, family warmth, association with deviant peers, and adolescents' antisocial behaviors.

As a background to the study, the bioecological theory of human development (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) is used as the overarching theoretical framework within which the two hypothesized models are examined. Additionally, various theoretical issues related to risk, vulnerability, and protective factors and processes are explored. In this dissertation, I argue that economic distress is a distal risk variable that influences children's adjustment through proximal maternal and family process variables.

Using the bioecological perspective (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) and the expositions of Richters and Weintraub (1990), I have posited that there are individual factors that serve as either vulnerabilities or protective factors. Individual vulnerabilities are seen as traits that increase the odds of maladjustment. For example, a difficult temperament, risk-taking behaviors, impulsivity, and hyperactivity have been positively linked with antisocial behaviors (e.g., Gottfredson & Hirschi, 1990; Kazdin, 1987; Lytton, 1990, Moffitt, 1993). Individual assets that have been found to serve a protective function include an easy temperament (Werner, 1985, 1990, 1993; Werner & Smith, 1982) and an internal locus of control (Luthar, 1991; Parker, Cowen, Work, & Wyman, 1990;

Werner & Smith, 1982).

Pursuant to an examination of the theoretical issues, I explored in the general literature review findings regarding the negative impacts of poverty for both families and children. The findings indicate that economic distress provides a context of parenting and adversely affects not only parents, but also parent-child relationships and children's adjustment. I also draw on research pertaining to family process variables that have been found to ameliorate the negative impact of economic distress on children's adjustment. In that regard, the literature reveals that not all families respond in the same way to economic adversity, and there is variability in response patterns. Some families have been shown to be affectively warm and supportive of children despite economic adversity, and children in such families have been found to be more socially competent than those from families that are discordant and aversive.

In the last section of the literature review, empirical findings pertaining to the differential effects of family structure for children's competence are examined. The findings on the effects of family structure are inconclusive: Some studies have found single-parenthood to be associated with diminished social competence for children and adolescents, whereas other studies have not come to the same conclusion. Research on mother-stepfather families consistently has demonstrated that children from such family types do not fare well on social competence indices compared with those from intact biological families. Researchers (e.g., Biblarz & Raftery, Biblarz, Raftery, & Bucur; Kim, Hetherington, & Reise, 1999) have suggested that the negative effects of single-parent families are a function of inadequate socioeconomic resources, whereas that of mother-stepfather families stem from stepfather's withdrawal from the parenting role because of nonresponsiveness of stepchildren to stepparents' attempts at discipline, supervision, and monitoring.

Finally, the models proposed for both Studies 1 and 2 are examined. In the literature

review section for both studies, a summary of the empirical literature pertaining to the negative effects of economic distress, the ameliorative role of family processes, and family structure effects on children and adolescents' social competence are discussed. Additionally, and specific to Study 1, literature on the role of locus of control orientation as a moderator of the relationship between economic distress and social competence are examined. In Study 2, the empirical findings on the differential effects of adolescent temperament and gender on social competence also are discussed.

CHAPTER 2

Theoretical Framework

As a backdrop to the present study, three pertinent theoretical expositions are addressed. The first relates to the bioecological theory of human development that is used as an organizing framework for this essay. The second bears on the definitional issues related to risk and vulnerability factors, and the third pertains to the conceptualization of protective factors and protective processes. These expatiations provide a context within which the present studies are placed.

The discussions relating to bioecological theory are proposed to buttress the widely accepted propositions in the literature that developmental outcomes are a function of contextual, familial, and individual influences. Bioecological theory also proposes that, depending on the frequency and quality of proximal interactions between individuals and their families or contexts, developmental outcomes may be positively or negatively impacted.

In the exegesis on risk and vulnerability factors, it is argued that contextual, familial, and individual factors may represent either risk or vulnerability factors. For example, it is suggested that family economic distress is a distal risk factor whose impact on children's developmental outcomes is through proximal family processes such as family conflict. Just as contextual, familial, and individual variables may represent risk or vulnerabilities, variables in the above domains may serve protective functions to ameliorate the negative effects of risk factors.

Bioecological Theory of Human Development

Bioecological theory (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) proposes that developmental outcomes are a function of contextual, familial, and individual variables. The context is made up of the micro-, meso-, exo-,

and macrosystems. Bronfenbrenner and associates (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) suggested that individuals have characteristics that either enhance positive development (e.g., self-regulation) or inhibit positive development (e.g., difficult temperament).

The context of development. The microsystem is the immediate developmental setting of children and consists of the proximal interactions between children and their families or peers. Family interactions that are conflict-laden have been linked to negative developmental outcomes (Conger et al., 1991, 1992; McLoyd, 1990; McLoyd et al., 1994; McLoyd & Wilson, 1991), whereas family interactions that are affectively warm have been shown to promote social competence (Masten et al., 1988; Werner, 1985, 1990; Werner & Smith, 1982; Wyman et al., 1992). Negative peer influences also have been linked to antisocial behaviors among adolescents (Dishion et al., 1991, 1995; Gove & Crutchfield, 1982; Hanson et al., 1994; Krohn et al., 1990; Loeber & Hay, 1997; Smith & Stern, 1997; Snyder et al., 1986).

The mesosystem exemplifies the reciprocal relationships between elements of the microsystem. An example in the research literature are the findings that report that family conflict and a lack of parental monitoring and supervision increases the chances of adolescents associating with deviant peers (Ary et al., 1999; Dishion et al., 1991; Mason, Cauce, Gonzales, & Hiraga, 1994; Snyder et al., 1986).

Family economic distress can be conceptualized as an exosystem influence that has an effect on children's development but in which children are not actively involved. As an exosystem, it impacts children indirectly through its effects on parental mood problems and family processes. Finally, the macrosystem depicts the broader culture with its beliefs, resources, and opportunity structures. For example, lack of employment opportunities for parents may

hinder parents' ability to be effective caregivers through its influence on parental moods, increased stress, parental punitiveness, and parents' confidence in their parenting skills (e.g., Conger & Elder, 1994; Elder et al., 1995). Diminished parenting skills and quality of parenting adversely affect parent-child proximal processes (i.e., interactions between parents and children).

Proximal processes. Proximal processes represent the interactions between children and their immediate environment (Bronfenbrenner, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998). Examples of proximal processes include parental interactions with children, parental responsiveness, and parental monitoring and supervision. Parent-child interactions that are affectively warm and positive have been argued to have an inhibitory effect on negative behaviors (Gove & Crutchfield, 1982; Krohn et al., 1990) and promote social competence (Masten et al., 1988; Werner, 1990,1993; Werner & Smith, 1982; Wyman et al., 1992). In contrast, conflict-laden and negative interactions promote dysfunction (Conger et al., 1991, 1992; Halpem, 1990; McLoyd, 1990; McLoyd et al., 1994; McLoyd & Wilson, 1991). To be effective, parent-child interactions must occur on a regular basis, over time, and be bidirectional (Bronfenbrenner, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998).

Person characteristics. Bronfenbrenner (1995) and Bronfenbrenner and Morris (1998) suggested that an individual's disposition influences the quality of his or her interactions with his or her context, and they distinguished between developmentally generative and disruptive dispositions. For example, an easy temperament that may be considered a developmentally generative disposition promotes interactions between children and their environments, whereas a difficult temperament and impulsiveness (examples of developmentally disruptive dispositions)

may impede successful interactions (Bronfenbrenner & Morris, 1998).

Risk Factors

Economic distress is a risk factor that puts both families and children at risk for problems such as marital conflict, aversive parenting, parental mood problems, and both externalizing and internalizing disorders for children (Conger et al., 1991, 1992; Halpem, 1990; McLoyd, 1990; McLoyd, Jayaratne, Ceballo, & Borquez, 1994). If a child is classified as being at-risk because of poverty it does not mean that the child has a vulnerability for a disorder. Therefore, for those children, it is necessary to assess their family environment. If there is no direct evidence of proximal familial stressors then those children may not be truly at risk (Richters & Weintraub, 1990). The argument is that it is important to understand the processes through which economic distress puts families and children at risk (Rutter, 1979, 1990). For example, poverty impacts child outcomes indirectly through parental mood problems and family conflict (Conger et al., 1991, 1992; McLoyd, 1990; McLoyd et al., 1994).

Distal and proximal risk factors. Baldwin, Baldwin, and Cole (1990) differentiated between distal and proximal variables. Using that distinction, economic distress was conceptualized as a distal risk factor that impacts child outcomes through mediating proximal family process variables, such as family conflict, warmth, and association with deviant peers. For example, family conflict increases adolescents' association with deviant peers, and unsupervised peer groups are more likely to engage in antisocial activities. Additionally, given that the family controls many of the proximal variables, the effects of the proximal family variables on children may be more powerful than those of the distal variables (Baldwin et al., 1990).

Vulnerability Factors

The vulnerability model holds that individuals have certain characteristics that moderate maladaptation (Richters & Weintraub, 1990; Rutter 1990). For example, locus of control orientation has been shown to be differentially related to the social competence of children in the face of economic distress (Luther, 1991). Specifically, an internal locus control (LOC) orientation has been linked to increased social competence, whereas an external LOC orientation has been associated with reduced social competence. Also, a difficult temperament has been shown to be related to increased antisocial behaviors, whereas an easy temperament has been associated with reduced incidence of antisocial behaviors (Werner, 1985; Werner & Smith, 1982).

Feldman, Stiffman, and Jung (1987) and Richters and Weintraub (1990) critiqued the usage of the vulnerability model. Feldman et al. (1987) argued that the vulnerability model fails to take into account the interaction of child and contextual factors. In contrast, Richters and Weintraub (1990) posited that the vulnerability model does not address (a) the types of stressors that might lead to a disorder, (b) the domains of functioning that are affected, (c) the processes involved in the development of a disorder, and (d) whether vulnerabilities are dichotomous or continuous.

Protective Factors

Protective factors are variables that buffer children from the adverse effects of exposure to risks by either reducing the impact of the risk or changing the way children respond to the risk. Protective factors in multiple domains (e.g., individual, family, school, peers, and neighborhood) have been reported (Garmezy, 1991; Luthar, 1991; Werner, 1985, 1990; Werner & Smith, 1982).

Individual factors that have been found to serve protective functions include an easy temperament (Werner, 1985; Werner & Smith, 1982), intelligence (Garmezy et al., 1984; Luthar,

1991; Masten et al., 1988), an internal LOC (Luthar, 1991; Parker et al., 1990; Werner & Smith, 1982), social problem-solving skills (Cowen et al., 1992; Dubow & Tisak, 1989), positive self-esteem, self-efficacy, and expectations for the future (Cowen et al., 1992; Werner, 1990; Wyman et al., 1992; Wyman, Cowen, Work, & Kerley, 1993). A supportive, warm, and caring family environment has been linked to children's social competence, as are close relationships with other caring adults (Masten et al., 1988; Werner & Smith, 1982; Wyman et al., 1992).

Protective processes. How do protective factors operate? Richters and Weintraub (1990) distinguished between two types of protective mechanisms: risk reducers and protective factors. Risk reducers are children's personal and contextual resources that are linked with increased social competence, whereas protective factors imply an understanding of why these factors are linked with reduced incidents of negative outcomes. Rutter (1990) and Garmezy et al. (1984) proposed different ways protective mechanisms operate. Rutter (1990) argued that protective factors operate by (a) reducing the impact of risk, (b) reducing negative chain reactions, (c) establishing and maintaining self-esteem and self-efficacy, and (d) opening up opportunities.

In contrast, Garmezy et al. (1984) distinguished among (a) the compensatory, (b) the challenge, and (c) the immunization models. The compensatory model asserts that the protective factors needed to counteract the effects of stress are a function of the amount of stress present. The challenge model posits that, as stress increases, adaptive behavior decreases when protective factors are low; however, stress may actually enhance adjustment, provided that the levels of stress are not too high. Finally, the immunization model suggests that protective factors are more important than the degree of stress to the prediction of social competence.

CHAPTER 3

General Literature Review

Bioecological theory (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) provides a conceptual framework for integrating the findings related to the effects of economic distress on children's social competence. I argue that children's social competence is a function of child, familial, and contextual factors. In that regard, the literature review is divided into three sections. In the first section, the context within which parenting occurs and how that context influences parents and children are explored. The second section deals with research pertaining to family process variables that ameliorate the relationship between economic distress and children's social competence. In the final section, the role of family type as a moderating variable is examined.

Economic Distress, Parenting, and Children's Social Competence

Economic distress provides a context within which parenting occurs (Baldwin et al., 1990; Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998). A large body of empirical literature has explored the links between family economic distress and children's social competence and revealed an association between SES and social competence (Ary et al., 1999; Conger et al., 1991, 1992; Conger & Elder, 1994; Conger, McCarty, Yang, Lahey, & Kropp, 1984; Elder et al., 1995; Halpem, 1990; McLoyd, 1990; McLoyd et al., 1994; Myers & Taylor, 1998).

Economic distress as a distal risk factor has been shown to be related to (a) parental psychological well-being; (b) disruptions in the family; (c) high exposure to acute and chronic life stressors; and (d) hostile-rejecting parenting practices, including greater reliance on corporal punishment, and family conflict (Ary et al., 1999; Conger et al., 1984, 1991, 1992; Halpem,

1990; McLoyd, 1990; McLoyd et al., 1994; Myers & Taylor, 1998). Family processes in turn are related to children's mood (Ary et al., 1999; Lempers, Clark-Lempers, & Simon, 1989; McLoyd et al., 1994) and externalizing problems (Conger et al., 1992; Myers & King, 1983).

Conger et al. (1992), using a sample of white middle-class intact families, reported that economic stress exacerbated problems in adults functioning and marital interactions, which then were related to adolescent adjustment through parental child-rearing behaviors. McLoyd et al. (1994), using an African-American sample, demonstrated that economic distress influenced mothers' psychological well-being, which in turn led to negative perceptions of their maternal role and more punitiveness toward their children. Increased punitiveness in turn were associated with adolescents' negative adjustment.

Although an association between economic distress and children's social competence has been reported in the literature, various researchers (e.g., Bradley & Whiteside-Mansell, 1997; Dishion, et al., 1995) have argued that this relationship is confounded by the fact that most poor families tend to (a) live in dangerous and unsafe neighborhoods, (b) be single parents, (c) lack employment opportunities, and (d) be socially isolated from mainstream society.

In general, the research findings suggest that perceived stress from financial pressures increases parental irritability, marital conflict, and mood problems that spill over into the parent-child relationships, resulting in punitive, conflict-filled relationships in which parents are less warm and nurturing of their children, undermining parental confidence in their parenting skills, and leading to adjustment problems for children (Conger et al., 1984, 1991, 1992; Conger & Elder, 1994; Elder et al., 1995; McLoyd, 1990, McLoyd et al., 1994).

Family Variables as Protective Factors

Families experiencing economic distress are faced with challenges in providing for their

members, but they exhibit some variation and resourcefulness in dealing with these challenges (Rosier & Cosaro, 1993). Empirical evidence suggests that not all families are adversely affected by economic pressures. Myers and Taylor (1998) reported that mothers of stress-resistant African-American children compared with the mothers of stress-affected children were less distressed, used fewer rejecting parenting strategies, and were able to mobilize their families to seek and obtain support.

Various dimensions of family processes and parenting have been found to ameliorate the impact of poverty. A number of investigators (e.g., Garmezy, 1985, 1991; Masten et al., 1988; Werner, 1985, 1990; Werner & Smith, 1982; Wyman et al., 1992) consistently have demonstrated that a warm, caring, and supportive family environment moderates the effects of poverty and promotes positive adaptation. For example, Taylor (1996) reported that parental support was associated with fewer externalizing and internalizing problems among African-American adolescents.

Parenting styles also have been associated with children's social competence (Abell, Clawson, Washington, Bost, & Vaughn, 1996; Seidman et al., 1999; Taylor et al., 1993). Successful parents in high-risk contexts have been found to be more restrictive, vigilant in their monitoring, authoritarian, and warm and caring (Baldwin et al., 1990; Masten et. al., 1988; Taylor, Casten, & Flickinger, 1993; Werner & Smith, 1982; Wyman et al., 1992). Seidman et al. (1999) reported that poor children in functional families in which parents provided positive support and were involved with their children had significantly less intensive depressive symptoms and antisocial behaviors than did poor children in dysfunctional families. Abell et al. (1996) also reported that a democratic parenting style was associated with higher social competence scores than were other styles of parenting for adolescents in poor families.

Family Structure and Children's Social Competence

Various authors (e.g., Biblarz & Raftery, 1999; Hill, 1998; Jarrett, 1994) have argued against (a) assuming that two-parent families are superior to single-parent ones and (b) equating family structure with family functioning because the quality of functioning is not the same as structure. It is conceivable that a two-parent family with adequate socioeconomic and emotional resources provides more opportunities for children. However, to assume that all two-parent families are functional whereas all single-parent families are dysfunctional is misleading (Jarrett, 1994).

Research on the effects of family structure for African-American children's social competence is equivocal. Some studies (e.g., Baer, 1999; Bartko & Sameroff, 1999; Cooper, Pierce, & Tidwell, 1995; Kellam, Ensminger, & Turner, 1977; Kim, Hetherington, & Reise, 1999; McLanahan, 1985) have found detrimental effects, whereas other studies (e.g., Ensminger, 1990; Gray-Ray & Gray, 1990; Lindblad-Goldberg, Dukes, & Lasley, 1988; Salem Zimmerman, & Notaro, 1998) have not found any deleterious effects.

The findings regarding the detrimental influence of family structure for African Americans suggest that (a) single-parent or stepparent family type is associated with increased drug use (Cooper et al., 1995), (b) father-absence is associated with dropping out of high-school (McLanahan, 1985), (c) nuclear family relative to single-parent family is related to significantly less family conflict (Baer, 1999), (d) mother-alone families entail significant risks in terms of depression and social adaptational status (Kellam et al., 1977), and (e) adolescents from single-parent families compared with those from two-parent families have heightened problem behaviors (Bartko & Sameroff, 1999; Kim et al., 1999).

Research on stepparent families has shown consistently that children from these families have elevated behavior problems relative to those from nondivorced parents (Bray & Berger,

1993; Fine, Voydanoff, & Donnelly, 1993; Hetherington & Clingempeel, 1992; Kim et al., 1999). Kim et al. (1999) reported that children in stepfamilies, relative to non-stepfamilies, showed greater association with delinquent peers and externalizing behavior. Additionally, mothers and stepfathers in stepfamilies showed more negative behaviors toward adolescents than mothers and biological fathers in non-stepfamilies.

Kim et al. (1999) suggested that, although the addition of a stepfather to the family makes extra socioeconomic and emotional benefits available to both mother and child that might counter some of the negative effects related to single-parenthood, the challenges of adjusting to the complex relationships in stepfamilies counteracts any advantage of the addition of a stepparent. It also has been suggested that, because stepparents and their stepchildren do not share a common family history and biological bond and the role and responsibilities of a stepparent are ambiguous, the stepparent's role is made difficult. This, in addition to stepchildren's resistance to stepparents' attempts at discipline, leads stepfathers to become more disengaged and involved than nondivorced biological fathers in two-parent families (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992).

Other investigators have failed to find family structure to be related to adverse child outcomes. For example, family structure has been found to be unrelated to substance use (Ensminger, 1990) and delinquency (Gray-Ray & Ray, 1990). Salem et al. (1998), in their study of the effects of family structure and family process on behavior problems and psychological well-being, found no family structure effects on behavior problems when age was controlled for, and no family structure effects on psychological well-being. Lindblad-Goldberg et al. (1988) reported that low-income African-American families headed by single mothers who focus on positive experiences function effectively in the face of adverse social conditions.

In accounting for the equivocal findings pertaining to research on single-parent families,

investigators (e.g., Biblarz & Raftery, 1999; Biblarz, Raftery, & Bucur, 1997; Thomson, Hanson, & McLanahan, 1994) have pointed to the role of inadequate economic resources in single-parent families. These researchers have argued that the economic disadvantage of single-mother families, a result of unemployment or low occupational status account for the observed negative family structure effects.

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PART 2

STUDY 1

DOES FAMILY TYPE OR LOCUS OF CONTROL ORIENTATION MODERATE THE RELATIONSHIPS AMONG ECONOMIC DISTRESS, MATERNAL AND FAMILY VARIABLES, AND AFRICAN-AMERICAN ADOLESCENTS' SOCIAL COMPETENCE?

Abstract

The differential effects of family structure and locus of control orientation on the associations among economic distress, maternal mood problems, family processes, and African-American adolescents' social competence were investigated. The data used were the third wave of the data collected by the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1966-1976. Only the responses of African-American participants and family types that included mothers were used, creating a total sample size of 840 families and four family types. Using path analysis with maximum likelihood estimation, I found that (a) the same structural model holds across family type and locus of control orientation; (b) the effects of maternal mood problems on adolescents' social competence differed by family type; (c) the effects of family processes on adolescents' social competence differed by family type' and (d) the effects of family processes on adolescents' social competence differed by locus of control orientation.

CHAPTER 1

Introduction

Economic distress is a risk factor that is associated with various negative outcomes for families and children. For example, it has been found to be associated with antisocial behaviors, school failure and dropout, substance use and abuse, adolescent parenthood, early violent death, and internalizing problems (Ary et al., 1999; Conger & Elder, 1994; Conger et al., 1991, 1992; Elder et al., 1995; Halpem, 1990; Hammond & Yung, 1994; McLoyd, 1990; McLoyd et al., 1994; Myers & Taylor, 1998).

Two lines of inquiry appear to be noteworthy in understanding the linkage between economic distress and children's social competence. The first indicates an association between poverty and negative child outcomes. This course of research contends that economic distress affects children's social competence through parenting variables and posits unmoderated relationships among economic distress, parental mood problems, family process, and adolescents' adjustment (Ary et al., 1999; Conger et al., 1991, 1992; Halpem, 1990; McLoyd, 1990; McLoyd et al., 1994; Myers & Taylor, 1998). However, these research findings do not adequately address the effects of other individual and family variables that might moderate the relationship between economic distress and children's social competence.

The second line of inquiry—based on the literature on resilience—suggests that, although there is an association between socioeconomic status and children's social competence, there is variability in families' responses to economic distress. Furthermore, the purported association between economic distress and children's social competence appears to be moderated by child and family factors (Cowen et al., 1992; Garmezy, 1985; Garmezy et al., 1984; Garmezy & Neuchterlein, 1972; Luthar, 1991; Masten et al., 1988; Parker et al., 1990; Werner, 1985; Werner & Smith, 1982; Wyman et al., 1992, 1993). However, the findings in this domain do not

adequately address the processes involved in the differential effects of child factors.

The current study has two goals: (a) to understand the processes through which economic distress impacts adolescents' social competence and (b) to investigate whether family type and locus of control orientation moderate the postulated relationships. The premise of the present study is that economic distress is a distal variable that influences children's social competence indirectly through proximal maternal mood problems and family conflict and warmth (Baldwin et al. 1990; Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998; Richters & Weintraub, 1990). The reasoning here is that the perceived stress from financial pressures increases mood problems and spills over into the parent-child relationships. These dynamics conceivably could result in punitive, conflict-filled relationships in which parents are less warm to their children, a phenomenon that has been shown to negatively affect children's adjustment (Conger et al., 1991, 1992; Conger & Elder, 1994; Elder et al., 1995; McLoyd, 1990; McLoyd et al., 1994). As a corollary to these postulations, another goal is to examine whether family type and adolescents' locus of control orientation moderate the hypothesized relationships.

Rationale for the Study

The current study seeks to extend the findings regarding the associations among economic distress, maternal mood problems, family processes, and adolescents' social competence. As already noted, past literature on the mediational processes through which economic distress impacts child outcomes have typically neglected the role of other individual and familial variables that might moderate that relationship.

Additionally, the literature on resilience shows that child characteristics moderate the relationship between economic distress and children's adjustment. However, researchers have paid little attention to how child factors operate to moderate adjustment. Thus, the purpose of the

present study was to link the two areas of research by examining the effects of family and individual factors on the associations among economic distress, maternal mood problems, family processes, and African-American adolescents' social competence. Finally, the current study is different from previous research in the following ways: (a) It uses an entirely African-American sample (which is important given the paucity of research on this population), and (b) it examines the moderational role of four family types and locus of control on the hypothesized relationships.

CHAPTER 2

Literature Review

This literature review is divided into four subsections. In the first subsection, I review empirical evidence pertaining to the relationship between economic distress and outcomes for children, parents, and families. The second subsection examines family processes that might be characterized as protective and aid in the development of children's social competence. Pursuant to that, the role that family structure plays in the linkage between economic distress and children's social competence is examined. Finally, I examine research findings related to intrapersonal variables that are associated with children's social competence with a specific focus on locus of control orientation.

Negative Outcomes Associated with Economic Distress

Economic distress provides a context within which parenting occurs. Economic hardship has been shown to disrupt and undermine effective parenting and lead to negative developmental outcomes for children (Conger & Elder, 1994; Elder et al., 1995). For example, poverty is associated with diminished parental psychological well-being (Conger et al., 1992; Dressler, 1985; McLoyd, 1994; Myers & Taylor, 1998), marital conflict (Ary et al., 1999; Conger et al., 1992; Furstenberg, 1976), and aversive and hostile childrearing practices (Conger et al., 1984; Halpem, 1990; Lempers et al., 1989; McLoyd et al., 1994; McLoyd & Wilson, 1991; Myers & Taylor, 1998). Aversive and hostile family and parent-child interactions, in turn, are related to children's depressed mood (Ary et al., 1999; Lempers et al., 1989; McLoyd et al., 1994) and externalizing problems (Conger et al., 1991, 1992; McLoyd, 1990; Myers & King, 1983).

In essence, this line of research suggests that perceived stress from financial pressures increases parental irritability, mood problems, and marital conflict (Conger et al., 1992; McLoyd

et al., 1994) resulting in poor parent-child relationships. Parents experiencing consistent economic difficulty tend to be more punitive and are less warm and nurturing of their children (Conger et al., 1991, 1992; McLoyd, 1990), parental behaviors which invariably result in children's diminished social competence (Conger & Elder, 1994; Conger et al., 1992; Elder et al., 1995; Halpem, 1990; Lempers et al., 1989; McLoyd et al., 1994; Myers & King, 1983). However, these research findings fail to acknowledge how other family and child factors might moderate the relationships between economic distress and children's developmental competencies.

Family Processes and Children's Social Competence

Family process variables such as, family warmth, parental support, and monitoring have been found to ameliorate the adverse effects of economic distress on children's outcomes (Abell et al., 1996; Baldwin et al., 1990; Masten et al., 1988; Myers & Taylor, 1998; Taylor, 1996; Taylor et al., 1993; Werner, 1985, 1990; Werner & Smith, 1982; Wyman et al., 1992). The relevant literature reveals that (a) parental support is associated with less problem behavior and psychological distress among adolescents (Taylor, 1996), (b) authoritative parenting practices that involve warmth, acceptance, firm behavioral control, and parental monitoring are associated with increased psychosocial adjustment among adolescents (Taylor et al., 1993); (c) mothers of stress-resistant children tend to be less distressed and use less rejecting parenting strategies than mothers of stress-affected children (Myers & Taylor, 1998), and (d) successful parents in high-risk contexts tend to be more restrictive, vigilant in their monitoring, authoritarian, and warm and caring than unsuccessful parents in that same context (Baldwin et al., 1990; Masten et. al., 1988; Werner & Smith, 1982; Wyman et al., 1992).

Different parenting styles and family functioning with disparate implications for child development have also been observed among poor African-American families. Seidman et al.

(1999) reported that poor African-American children in functional families had parents who provided significantly more positive support and were involved with their children. Additionally, African-American children in functional families had significantly less depressive symptoms and antisocial behaviors than did poor children in dysfunctional families. Abell et al., (1996) also reported that a democratic parenting style was associated with higher social competence scores than did other styles of parenting for adolescents in poor African-American families.

The literature on family processes and children's adjustment does not adequately address the interaction of family and child factors. Given the reciprocal nature of the parent-child relationship, it is conceivable that child attributes influence the parent-child relationship. Thus ignoring to explore how child attributes affect the parent-child interactional process obscures our understanding of the role child factors play in children's own adjustment.

Family Structure and Children's Social Competence

Research on the effects of family structure for children's social competence are inconclusive. Some investigators (e.g., Baer, 1999; Bartko & Sameroff, 1999; Cooper et al., 1995; Kellam et al., 1977; Kim et al., 1999; McLanahan, 1985) have found detrimental effects, whereas other studies (e.g., Ensminger, 1990; Gray-Ray & Gray, 1990; Lindblad-Goldberg et al., 1988; Salem et al., 1998) have reported otherwise. For example, findings on the negative effects of family structure suggest that (a) single-parent or stepparent family type is associated with increased risk for increased drug use (Cooper et al., 1995); (b) father-absence is related to increased probability of dropping out of high-school (McLanahan, 1985); (c) nuclear family, relative to a single-parent family, is associated with significantly less family conflict (Baer, 1999); (d) children in mother-alone families have greater probability for incidents of depression and behavior problems (Kellam et al., 1977); (e) adolescents from single-parent families, relative to

those from two-parent families, have heightened problem behaviors (Bartko & Sameroff, 1999); and (f) children from stepfamilies have a higher propensity for behavior problems relative compared to those from intact families (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992). Kim et al. (1999) reported that children in stepfamilies showed a greater incidence of friendship with delinquent peers and exhibited greater externalizing behavior than children in non-stepfamilies. Additionally, mothers and stepfathers in stepfather families showed more negative behaviors toward adolescents than mothers and biological fathers in non-stepfamilies.

However, other findings have failed to find family structure to be related to adverse child outcomes. For example, family structure has been reported to be unrelated to substance use (Ensminger, 1990) and delinquency (Gray-Ray & Ray, 1990). Salem et al. (1998) in their study of the effects of family structure and family process on behavior problems and psychological well-being found no family structure effects on behavior problems when age was controlled, and no family structure effects on psychological well-being. Lindblad-Goldberg et al. (1988) concluded that low-income African-American families headed by single mothers who focus on positive experiences function more effectively in the face of adverse social conditions than those who focus on negative experiences.

A relevant question is what accounts for the detrimental effects observed in single-parent and stepparent families? Some investigators (e.g., Biblarz & Raftery, 1999; Biblarz et al., 1997; Thomson et al., 1994) have argued that the economic disadvantage of single-mother families, a result of unemployment or low occupational status and low levels of social support, account for the observed family structure effects.

Kim et al. (1999) suggested that the challenges families face in adjusting to the complex relationships in stepfamilies seem to counteract any advantage of the addition of a stepparent. For

example, stepchildren resist stepparents' attempts at discipline, which leads stepfathers to become more disengaged, less warmth and involved than nondivorced biological fathers in two-parent families (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992).

The research findings on family structure effects, does not adequately address its interaction with the family process variables. Given the inconclusive findings regarding the moderating role of family type on children's adjustment, it is reasonable to argue that it is family process variables that impact children's adjustment rather than family type. If that argument is tenable, then it is logical to examine the interaction of family type and family process variables to find out if there are differential family type effects on children's social competence.

Child Characteristics and Social Competence

Children's ability to affect their environments is limited, however, some children possess certain attributes such as cognitive competence (Garmezy et al., 1984; Werner, 1990), an internal locus of control (Luthar, 1991), positive feelings of self-esteem and self-efficacy (Cowen et al., 1992), and positive expectations for the future (Wyman, Cowen, Work, & Kerley, 1993) that enable them to overcome the stressors associated with economic distress.

Locus of control (LOC), the perceived sense of control over one's behavior, is a motivational variable which has been found important in understanding social competence. For example, a review of studies of LOC orientation and achievement indicate that internal beliefs are significantly related to academic achievement (Phares, 1976). What is less clear is whether and how LOC orientation moderates the relationships among economic distress, maternal mood problems, family process, and adolescents' social competence?

In summary, past research has shown that (a) economic distress negatively impacts parental psychological well-being; (b) diminished parental psychological well-being is related to

increased family conflict, antisocial behaviors, depressive symptoms, and a reduction in family warmth; and (c) increased family conflict is associated with heightened antisocial behaviors and depression, whereas increased family warmth is associated with increased social competence.

Research Questions

Although there is a great deal of research linking family processes to children's social competence, little attention has been paid to child factors in that line of research. Also, in studies on family structure effects, little attention has been paid to family processes and child characteristics. Finally, the role of family processes and how they influence child factors have received limited attention.

In view of these limitations, the present study sought to understand (a) whether and how family type and locus of control orientation were related to family economic distress, maternal mood problems, family processes, and adolescents' social competence and (b) whether the hypothesized structural relationships among the variables in the model hold irrespective of family type and locus of control orientation.

Social Competence Conceptualized

Several researchers have argued for the use of social competence as the construct of choice when assessing social adaptation. However, there is evidence to indicate that overt measures of adaptation do not mean individuals show superior adjustment on covert indicators of mental health (Luthar, 1991). Waters and Sroufe (1983) conceptualized social competence as a developmental construct defined by the individual's ability to use intrapersonal and environmental resources to achieve adaptive outcomes. In their view, to assess social competence, it is important to identify developmental tasks for each developmental period.

Masten and Coatsworth (1995) posited a multidimensional-developmental view that suggests that social competence refers to skills, processes, or outcomes related to the effectiveness of adaptation in the environment and helps individuals to effectively function in their environments as evaluated from the perspective of development in ecological and cultural context. Garmezy et al. (1984) defined social competence using observable behavioral criteria that represent success in meeting the expectations of society. Ratings by teachers, peers, and parents, as well as academic achievement scores, have been the predominant methods used to evaluate social competence.

Kellam et al. (1977) and Ensminger, Brown, and Kellam (1982) distinguished between social adaptation and psychological well-being. Social adaptation reflects the judgement of the adequacy of the individual's performance by others in the environment (e.g., parents). In contrast, psychological well-being refers to the individual's internal state and is assessed by self-ratings (Kellam & Rebok, 1992). Felner and his colleagues (Dubois & Felner, 1996; Felner, Lease, & Phillips, 1990, 1992; Felner, Primavera, & Cauce, 1981) proposed the quadripartite model of social competence, arguing that social competence is determined by individual and contextual factors. They viewed social competence as individuals having social skills, knowledge, and experience that enables them to engage in social interactions successfully.

Operational definition of social competence. The notion of social competence connotes both adaptation and evaluation (Masten, 1994). In terms of social competence's adaptive definition, it involves the ability of individuals to continuously and successfully adapt despite adversity. In contrast, the evaluative component of competence involves judgments on what is adaptive based on normative developmental patterns (Masten, 1994).

Adaptation can be either healthy or unhealthy, internal or external. Internal health is

characterized by psychological well-being, whereas social adjustment is characteristic of external adaptation (Masten, 1994). Some examples of internal problems are depression and anxiety, whereas external problems are evidenced in antisocial behaviors and social maladjustment (Masten, 1994). For the present study, social competence is composed of two aspects: internal and external. Internal competence refers to depression, and external competence is defined as antisocial behaviors.

The Hypothesized Model A

Figure 2.1 shows the structural relations among the variables in the form of a recursive path diagram. In path diagrams, a distinction is made between exogenous and endogenous variables. The variability of exogenous variables are determined by causes outside the model, whereas that of endogenous variables are determined in part by exogenous and other endogenous variables. In this model, family income was treated as an exogenous variable; maternal mood problems, family conflict, and family warmth were used as mediating endogenous variables; and adolescent depression and antisocial behaviors were conceptualized as endogenous variables. Family type and LOC orientation were the moderating variables.

Figure 2.1 shows that (a) income affects maternal mood problems; (b) maternal mood problems influences family conflict, family warmth, antisocial behaviors, and depression; (c) family conflict impacts antisocial behaviors and depression; and (d) family warmth affects antisocial behaviors and depression. The moderating effects of family type and locus of control orientation on the hypothesized relations among the variables in the model are indicated by the two arrows pointed at family income.

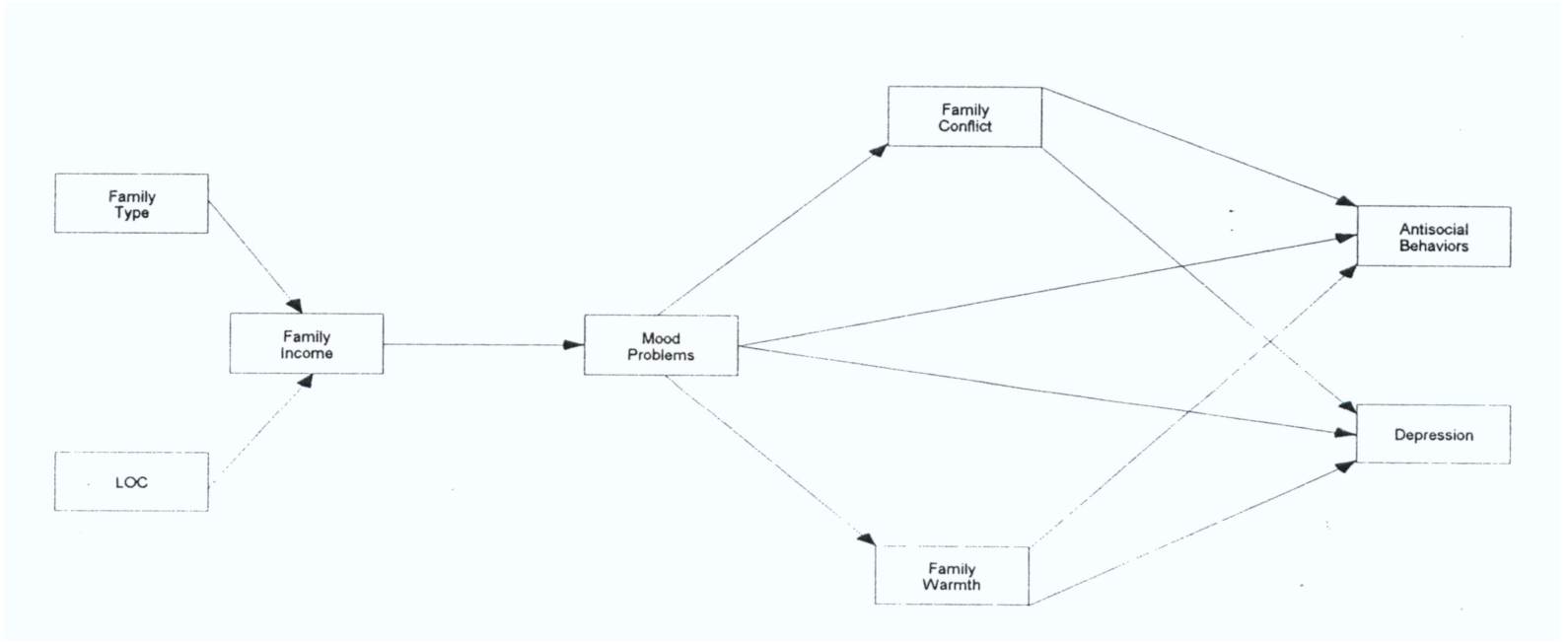

Figure 2.1. *Hypothesized path-analytic Model A: Influence of family income, maternal mood problems, family conflict, and family warmth on adolescents' antisocial behaviors and depression: Family type and locus of control orientation differences.*

CHAPTER 3

Method

In this section, I describe the data set and sample used for the present study. Economic distress is conceptualized as an exogenous variable. Maternal mood problems, family conflict, and family warmth are treated as mediating endogenous variables, with family type and locus of control orientation being moderating variables. Adolescents' depression and antisocial behaviors are the endogenous variables. In order to deal with nonresponses on some items used in creating the indices, I used SPSS' compute variable equal to sum function [compute variable 1 = SUM (variable A to variable Z)]. With this option, a scale is assigned a valid value if at least one score value is valid; it is system-missing only when all score values are missing (SPSS Inc., 1999).

Sample

The study employed data from the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1966-1976. The sample consisted of African-American adolescents and their mothers residing in Woodlawn, a community on the south side of Chicago. For the present study, family types that did not include mothers (father-alone, grandmother, aunt, stepfather, siblings, female non-relatives, and others) were excluded. Finally, mother-other adult family type was recoded to include mother-grandmother, mother-aunt, and mother-older sibling families. The recoding resulted in having four family types (intact, 253 respondents; mother-alone, 348 respondents; mother-stepfather, 67 participants; mother-other adult, 172 respondents), and a total sample size of 840 participants (parent-child pairs). The mean age of the mothers was 40.14 years with a standard deviation of 6.21 years. Of the adolescents, 423 were female and 417 were male. The mean age of the adolescents was 14.73 years with a standard deviation of 0.54 years.

Data Collection

Empirical articles (Ensminger, Brown, & Kellam, 1982; Fleming, Kellam, & Brown, 1982; Kellam et al., 1977; Kellam, Ensminger, Simon, 1980) can provide the reader with detailed descriptions of data collection procedures employed in the Woodlawn Project. Data were collected at three time periods. Time 1 data were collected from the children's mothers and teachers when the children were in the first grade. Time 2 data collection took place when the children were in the third grade, and information was provided by the children themselves. Time 3 data, provided by mothers and adolescents, were collected when the children were between 16 and 17 years old using measures of social adaptational status and psychological well-being. For the present study, only the third wave of collected data were used. The rationale for using only the third wave of data was that information about the variables of interest in this study were collected only at Time 3.

Measures

Economic distress. Total family income was used as a proxy measure for economic distress. It included income from all sources such as wages, business, social security, government pension, old age assistance, alimony and child support, aid to families with dependent children, cash contributions, general welfare assistance, and other sources of income. The mean income for the sample in 1976 dollars was $8,957.01 with a standard deviation of $5,722.05.

Index of maternal mood problems. A summative index using mothers' report of mood problems was created. Mothers responded to seven items indicating the degree to which they had felt (a) nervous, (b) tense, (c) anxious, (d) sad, (e) hopeless, (f) ashamed, and (g) blamed last few weeks. The responses were set on a 6-point Likert-type scale ranging from 1 = not at all to 6 =

very, very much. The mean response was 14.28, with a standard deviation of 5.52. The index indicated an alpha reliability of .75 for the present sample. See appendix 2.1 for sample items used.

Index of family conflict. Family conflict was measured using a summative index of mothers' report of family conflict. Mothers responded to five items about whether the child and adults in the home (a) had arguments, (b) shouted and let off steam, (c) let out hurt feelings, (d) threw things in anger, and (e) slammed doors in anger. Responses were set on a 6-point Likert-type scale ranging from 1 = less often to 6 = several times a week. The mean response was 13.39, with a standard deviation of 6.09. Alpha reliability for the index was .74. See appendix 2.2 for sample items used.

Index of family warmth. A summative index was created with an alpha reliability of .64 using mothers' report of family warmth. Mothers responded to five items about whether the child and adults in home (a) acted warm and loving, (b) hugged and kissed, (c) brought unexpected gifts, (d) understood each other's moods, and (d) said nice things to each other. The responses to the questions were set on a 6-point Likert-type scale ranging from 1 = less often to 6 = several times a week. The mean response was 20.9 with a standard deviation of 5.17. See appendix 2.3 for sample items used.

Family structure. Family structure was categorized as (a) intact, (b) mother-alone, (c) mother-stepfather, or (d) mother-other adult families. Intact families represented families in which both biological parents were still living together with their biological children. Mother-alone families represented mothers who were living alone as either never married or divorced

single mothers. Mother-stepfather families represented families in which either the mother, stepfather, or both had children. Mother-other adult families included families in which other relatives or siblings of the mother were present.

Locus of control scale. Locus of control was measured by mothers' responses to seven items indicating the degree to which (a) God, (b) luck, (c) society, (d) teachers, (e) parents, (f) friends, and (g) the child were responsible for how the child is doing. The responses were set on a 6-point Likert-type scale ranging from 1 = not at all to 6 = very, very much. Because the scale dealt with the child's locus of control being internal to self or stemming from external sources, the last item, "Item g" was reversed coded (1 = very, very much to 6 = not at all) to be congruent with the first six items. The items were summed to create an index of locus of control with a mean response of 22.8 and a standard deviation of 5.2. The scale indicated an alpha reliability of .60. A mean-split was used to dichotomize the sample; those scoring below 23 were categorized as internally oriented and those scoring above 24 as externally oriented. See appendix 2.4 for sample items used.

Index of adolescent depression. Mothers' responses to seven items about how much over the last few weeks the child had felt (a) nervous, (b) tense, (c) anxious, (d) sad, (e) hopeless, (f) ashamed, and (g) blamed were measured. The anchor points on the Likert-type scale are (1) not at all to (6) very, very much. The mean response was 12.07, with a standard deviation of 4.49. The responses to the items were summed to create an index of depression (alpha = .68). See appendix 2.5 for sample items used.

Index of adolescent antisocial behaviors. Mothers responded to 21 items related to the

frequency of child behavior problems such as truancy, school problems, stealing, substance use, and aggressive behaviors. Sample questions were "child (a) stayed out later than parents said, (b) suspended or expelled from school, (c) took something from store, did not pay, (d) drank beer/liquor without parent's permission, and (e) participated in gang fight." Mothers had to answer "yes" or "no" regarding whether the target child exhibited the behavior in question. If the mother answered "no" the response was coded as 2; if the mother's response was "yes" she was asked about the frequency of occurrence of the behavior in question. The responses, set on a 5-point Likert-type scale (2 = no, 3 = 5 or more times, 4 = 3 or 4 times, 5 = 2 times, 6 = 1 time) were reverse recoded, (2 = 1, 6 = 2, 5 = 3, 4 = 4, 3 = 5). Thus, the recoded scale was (1 = no, 2 = 1 time, 3 = 2 times, 4 = 3 or 4 times, 5 = 5 or more times). Higher values indicated higher frequency of occurrence. The summed responses had a mean of 25.84 with a standard deviation of 6.47. The summed index had an alpha reliability of .79. See appendix 2.6 for sample items used.

Data Analyses Strategy

The model hypothesized in Figure 2.1 was tested with multi-group path analysis based on maximum likelihood estimation procedures using the AMOS 4.0 statistical program (Arbuckle & Wothke, 1999). Path analysis facilitates the simultaneous consideration of the relationship among all the variables in the model (Loehlin, 1998) and allows for the measurement of indirect effects (Asher, 1983). In order to know whether family structure or LOC orientation moderate the associations among the variables specified in the model, I employed an a priori five-step multi-group path analytic technique that involved successively restricting certain path weights from one step to the next by constraining them to be equal across groups (Arbuckle & Wothke, 1999; Kline, 1998).

For these analyses, the covariance matrices for family type and LOC orientation were simultaneously fitted to the model in Figure 2.1. The covariance matrices were used in the multi-group analyses instead of the correlation matrix because the latter discards information about the variability of each group (Raykov, Tomer, & Nesselroade, 1991). Arbuckle and Wothke (1999) argued that a simultaneous analysis of groups has two advantages over doing separate analyses for different groups in that (a) it provides a test of the significance of any differences found between groups and (b) if it can be concluded that there are no differences among groups or if group differences concern only a few model parameters, multi-group analyses provide more efficient parameter estimates than do multiple single group models.

Five hierarchically nested multi-group steps using cross-group equality constraints of path weights were used to determine whether (a) family type or LOC orientation was equivalent in the general pattern of structural relationships among the variables [Step 1: Configural Invariance]; (b) family type or LOC orientation moderates the effects of family income on maternal mood problems [Step 2: Income Invariance]; (c) family type or LOC orientation moderate the effects of maternal mood problems on family conflict and warmth [Step 3: Mood Problems Invariance]; (d) family type or LOC orientation moderates the effects of maternal mood problems on adolescents' antisocial behaviors and depression [Step 4: Competence Invariance]; and (e) family type or LOC orientation moderates the effects of family conflict and warmth on adolescents' antisocial behaviors and depression [Step 5: Family Process Invariance].

CHAPTER 4

Results

In this section, I present the various indices of fit used to assess goodness-of-fit of the models. Pursuant to that, I present results of the structural invariance and moderating effects of family type and LOC orientation using the indices of fit suggested here. For the correlation coefficients among the variables used in Study 1, see appendix 2.7.

Indices of Fit

The indices of fit I chose to use to evaluate goodness-of-fit are (a) chi-square (χ^2), (b) the normed fit index (NFI), (c) the root mean square error of approximation (RMSEA), and (d) the test for close fit (P-CLOSE). Jaccard and Wan (1996) recommended the use of at least three goodness-of-fit tests, whereas Kline (1998) suggested at least four tests.

Hypothesis testing using the χ^2 is affected by the sample size being analyzed. As sample size increases, the probability that a given model will be rejected increases (Kline, 1998; Long, 1983). A significant chi-square is not a reason by itself to modify the model if other fit indices (e.g., NFI, RMSEA) provide a good fit. To reduce the sensitivity of the χ^2 statistic to sample size, a ratio of χ^2/df of about 3 is suggested (Kline, 1998).

The Bentler-Bonett Normed Fit Index (NFI) varies from 0 to 1, with 1 being a perfect fit. By convention, NFI values below .90 indicate a need to respecify the model (Bentler & Bonett, 1980). The RMSEA is relatively insensitive to sample size, and a statistical test of close fit (P-CLOSE) can be obtained for it. With the RMSEA, $p < .05$ indicates a close fit of the model per Browne and Cudeck (1993) and Loehlin (1998); however, Hu and Bentler (1999) suggested a RMSEA $\leq .06$ as the cutoff for a good model fit. For the test of close fit (P-CLOSE), the test is rejected if $p < .05$ (Loehlin, 1998).

Examination of the Models for Family Type Effects

Unstandardized regression path coefficients are reported because Kline (1998) and Loehlin (1998) argued that, when nested multi-group comparisons are made, indicators may have different variances across groups; thus, using standardized coefficients can mask differences that may exist across groups. The results of the path analyses for family type effects are presented first.

Assessing structural invariance for family types. Step 1 [Configural Invariance] was used to examine whether the structural relationships among variables in the model were equivalent across family types. This procedure required invariance of the structural patterning of the parameters rather than the numerical values (McArdle & Cattell, 1994; McArdle & Nesselroade, 1994). If the model is rejected by an examination of the goodness-of-fit indices, that suggests the need for alternative model specification for each family type. As reported in Table 2.1, the goodness-of-fit indices [χ^2(24 df) = 29.99, p = .19; χ^2/df = 1.25; NFI = .99; RMSEA = .03; P-CLOSE = 1] show the model to be adequate. This means that the hypothesized associations among the variables in the path diagram apply equally, irrespective of family type classification for this sample.

The hypothesized associations among the variables are plotted in Figure 2.2. Here the emphases are on the general pattern of associations among the variables and not on the path weights. For Figure 2.2, the path weights are reported for intact, mother-alone, mother-stepfather, and mother-other adult families respectively.

Assessing the moderating role of family type. In path analyses, in order to assess the moderating role of *Variable C* on the association between *Variable A* and *Variable B*, the

Table 2.1. *Comparative Goodness-of-fit for the Models of Family Type Effects.*

	Goodness-of-Fit				Test of Close-Fit		Comparative Goodness-of-Fit		
Step Label	df	χ^2	NFI	*p*	RMSEA	p-close	Δdf	$\Delta\chi^2$	*p*(d)
Step 1: Configural Invariance	24	29.99	.99	.19	.02	1			
Step 2: Income Invariance	27	30.74	.99	.28	.01	1			
Step 2 versus Step 1							*3*	*.75*	*.86*
Step 3: Mood Problems Invariance	33	37.26	.99	.28	.03	1			
Step 3 versus Step 2							*6*	*6.52*	*.37*
Step 4: Competence Invariance	39	60.54	.99	.02	.03	1			
Step 4 versus Step 2							*12*	*29.80*	*.003*
Step 5: Family Processes Invariance	51	81.55	.99	.004	.03	1			
Step 5 versus Step 2							*24*	*50.81*	*.001*

Note: df = degrees of freedom; NFI = normed fit index; *p* = probability of exact fit to the data; RMSEA = root mean square error of approximation; p-close = probability of close fit to the data; Δdf = difference in df; $\Delta\chi^2$ = difference in chi-square tests; *p*(d) = probability of difference tests.

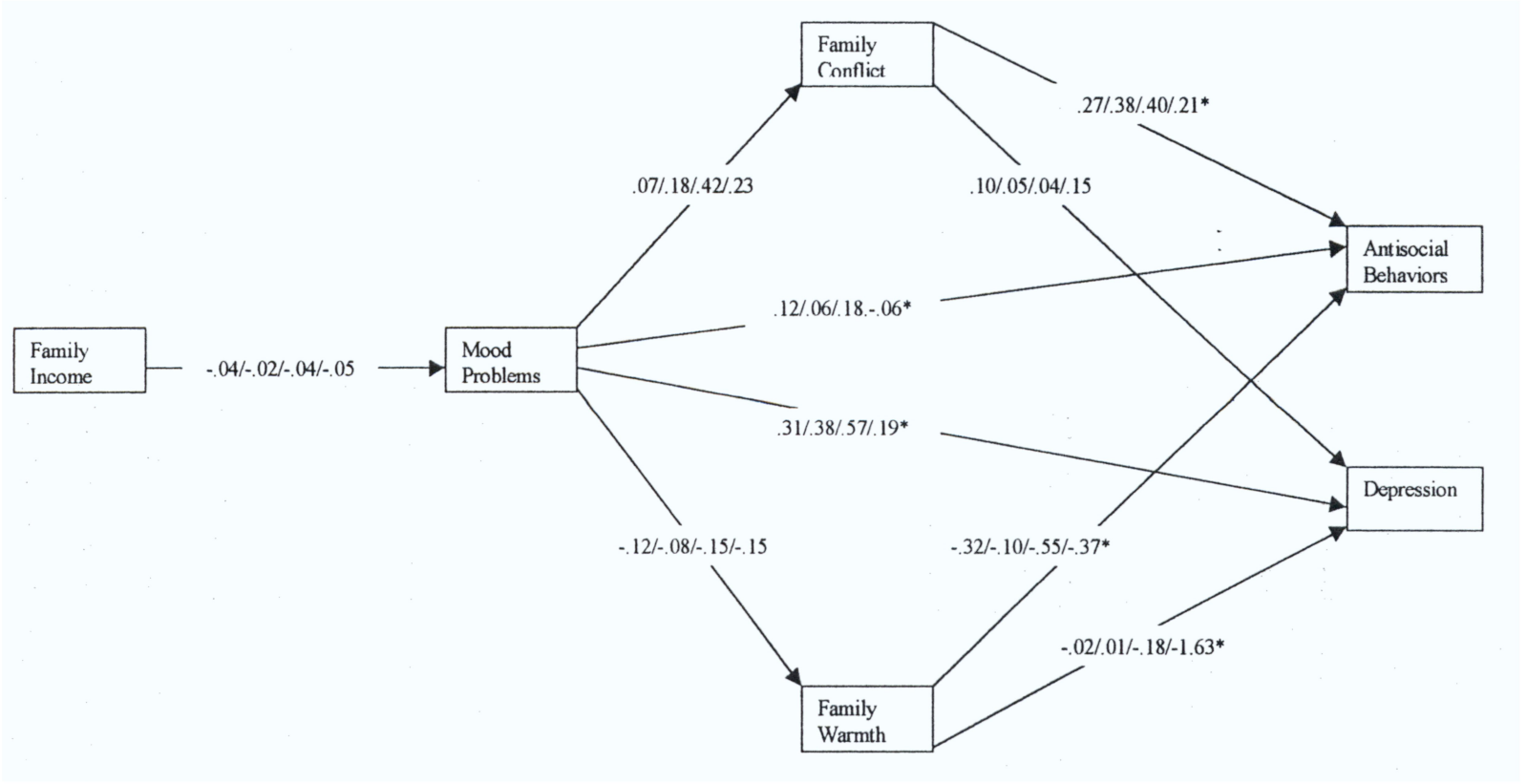

Figure 2.2. *Path-Analytic Model for Family Type Effects.*

Note: Path weights are reported for intact, mother-alone, mother-stepfather, and mother other-adult respectively. The asterisks attached to certain path weights, indicate paths that are moderated by family type.

researcher must compare a chosen baseline model and a model of interest. In this comparative analysis, the χ^2 and degrees of freedom of the baseline model are subtracted from those of the model of interest, and a *p*-value is calculated. A significant *p*-value indicates that there is a difference between the baseline model and the model of interest, which means that *Variable C* moderates the effects of *Variable A* on *Variable B* (Kline, 1998; Long, 1983).

Step 2 [Income Invariance] was compared against Step 1 [Configural Invariance] to determine whether family type moderates the effects of family income on maternal mood problems. Regarding Step 2, cross-group equality constraints were placed on the paths for income effects on maternal mood problems. The imposition of constraints allowed a test of whether a fixed unit change in income corresponded to the same change in maternal mood problems, independent of family type. If that was confirmed, the same regression weights then could be used for all groups (Arbuckle & Wothke, 1999). As reported in Table 2.1, the comparison of Model 2 against Model 1 revealed no significant family type differences ($\triangle df = 3$; $\triangle\chi^2 = .75$; n.s.), which means that family type did not moderate the effects of family income on maternal mood problems in this sample.

To assess whether family type moderates the effects of maternal mood problems on family conflict and warmth, Step 2 [Income Invariance] was compared against Step 3 [Mood Problems Invariance]. In terms of Step 3, cross-group equality constraints were placed on the paths between maternal mood problems and family conflict and warmth; these were in addition to the constraints placed on the paths in Model 2. The results presented in Table 2.1 show that there were no significant family type differences ($\triangle df = 6$; $\triangle\chi^2 = 6.52$; n.s.), indicating that family type did not moderate the effects of maternal mood problems on family conflict and warmth in this sample

Is family type differentially related to the effects of maternal mood problems on

adolescents' antisocial behaviors and depression? To assess that question, Step 2 [Income Invariance] was compared against Step 4 [Competence Invariance]. For Step 4, additional cross-group equality constraints were added to Step 3 by imposing constraints on the paths for the effects of maternal mood problems on adolescents' antisocial behaviors and depression. The results presented in Table 2.1 reveal a significant difference between models ($\Delta df = 12$; $\Delta\chi^2 = 29.80$; $p = .003$), indicating that family type moderated the effects of maternal mood problems on adolescents' antisocial behaviors and depression in this sample.

Does family type moderate the effects of family conflict and warmth on adolescents' antisocial behaviors and depression? To examine that question, Step 2 [Income Invariance] was compared against Step 5 [Family Processes Invariance]. For Step 5, cross-group equality constraints were placed on the paths for the effects of family conflict and warmth on adolescents' antisocial behaviors and depression; these constraints were in addition to those imposed in Model 4. As reported in Table 2.1, there was as a significant difference between the models ($\Delta df = 24$; $\Delta\chi^2 = 50.810$; $p < .001$), meaning that family type moderated the effects of family conflict and warmth on adolescents' antisocial behaviors and depression in this sample.

To identify which path weights were significantly different from each other among family types, the critical ratio for differences between parameters that was calculated by AMOS was used. This procedure is analogous to performing post-hoc analyses in ANOVA (Arbuckle & Wothke, 1999). For the sake of simplicity, the path weights of Model 1 [Configural Invariance] are summarized in Figure 2.2 and Table 2.2. For Figure 2.2, the path weights are reported for intact, mother-alone, mother-stepfather, and mother-other adult families respectively. Also, the asterisks attached to some of the path coefficients in Figure 2.2 mean that those coefficients are moderated by family type.

Table 2.2. *Step 1- Configural Invariance for Family Type Effects.*

	Intact Family			Mother-Alone			Mother-Stepfather			Mother-Other Adult		
Model Parameters	Est.	S. E.	*t*	Est.	S. E.	*t*	Est.	S. E.	*t*	Est.	S. E.	*t*
Income → Mood Problems	-.04	.02	-2.79**	-.02	.02	-1.18	-.04	.03	-1.13	-.05	.04	-1.29
Mood Problems → Conflict	.07	.07	1.01	.18	.06	3.08**	.42	.14	3.01**	.23	.08	2.78**
Mood Problems → Warmth	-.12	.07	-1.84	-.08	.05	-1.70	-.15	.13	-1.18	-.15	.07	-2.25*
Mood Problems → Antisocial Behaviors	.12	.07	1.83	.26	.06	4.59**	-.07	.18	-.39	-.06	.08	-.74
Mood Problems → Depression	.31	.05	6.70**	.38	.04	9.49**	.57	.12	4.65**	.19	.05	3.65**
Conflict → Antisocial Behaviors	.27	.06	4.59**	.38	.05	7.35**	.40	.14	2.83**	.21	.07	2.96**
Conflict → Depression	.10	.04	2.47*	.05	.04	1.52	.04	.09	.43	.15	.05	3.07**
Warmth → Antisocial Behaviors	-.32	.06	-5.29**	-.10	.06	-1.59	-.55	.16	-3.53**	-.37	.09	-4.03**
Warmth → Depression	-.02	.04	-.55	.01	.04	.25	-.18	.11	-1.63	-.06	.06	-.98

Model: $\chi^2(24\ df) = 29.99$, $p = .19$; $\chi^2/df = 1.25$; NFI = .99; RMSEA = .02; P-CLOSE = 1

* = $p < .05$; ** = $p < .01$

Plots for the Moderating Effects of Family Type

The results for the moderating effects of family type are plotted below. The plots reveal that family type moderates the effects of (a) maternal mood problems, (b) family conflict, and (c) family warmth on and adolescents' antisocial behaviors and depression.

Effects of maternal mood problems on antisocial behaviors. Figure 2.3 shows that increased maternal mood problems were related to (a) a marginal increase in antisocial behaviors (t = 1.63) among adolescents in mother-alone families (b = .26) relative to those in intact families (b = .12); (b) a marginal increase in antisocial behaviors (t = -1.72) among adolescents in mother-alone families (b = .12) relative to those in mother-other adult families (b = -.06); (c) a marginal increase in antisocial behaviors (t = -1.78) among adolescents in mother-alone families (b = .26) relative to those in mother-stepfather families (b = -.07); and (d) a significant increase in antisocial behaviors (t = -3.24) among adolescents from mother-alone families (b = .26) compared with those from mother-other adult families (b = -.06).

Effects of maternal mood problems on depression. Figure 2.4 shows that increased maternal mood problems were associated with (a) a significant increase in depression (t = 1.97) among adolescents from mother-stepfather families (b = .57) relative to those from intact families (b = .31); (b) a marginal increase (t = -1.61) in depression among adolescents from intact families (b = .31) relative to those from mother-other adult families (b = .19); (c) a significant increase in depression (t = -2.70) among adolescents from mother-alone families (b = .38) relative to those from mother-other adult families (b = .19); and (d) a significant increase in depression (b = -2.78) among adolescents from mother-stepfather families (b = .57) relative to those from mother-other adult families (b = .19).

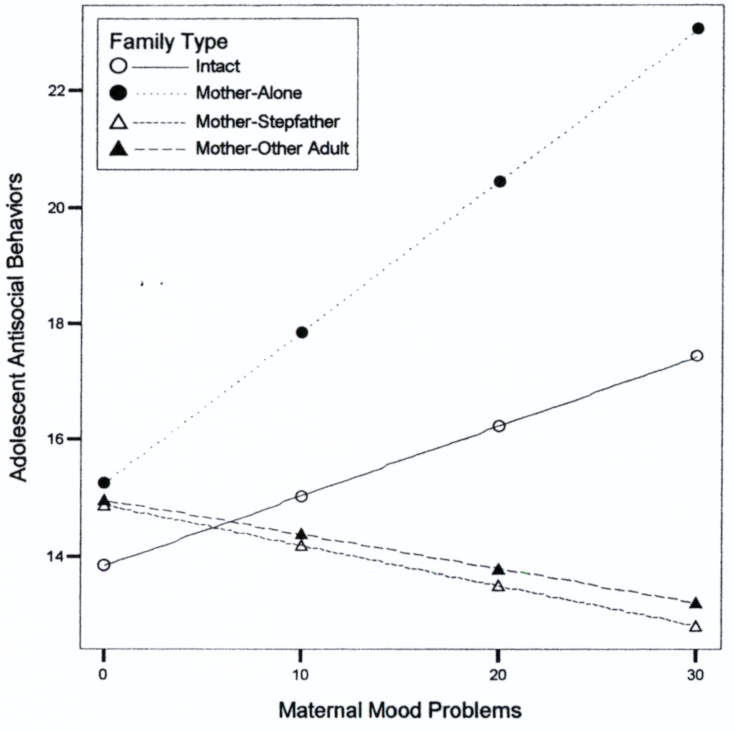

Figure 2.3. *The differential effects of family type on the associations between maternal mood problems and adolescents' antisocial behaviors.*

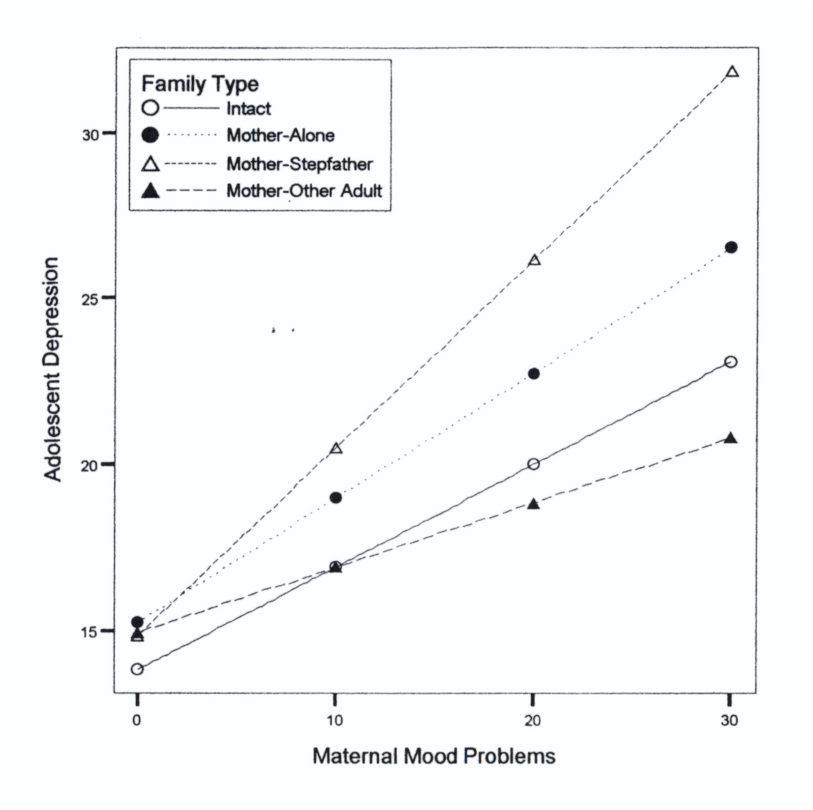

Figure 2.4. *The differential effects of family type on the associations between maternal mood problems and adolescents' depression.*

Effects of family warmth on depression. Figure 2.5 reveals that an increase in family warmth was associated with a marginal decrease in depression (t = -1.602) among adolescents in mother-stepfather families (b = -.18) relative to those in mother-alone families (b = .01).

Effects of family warmth on antisocial behaviors. Figure 2.6 shows that increased family warmth was related to (a) a significant reduction in antisocial behaviors (t = 2.56) among adolescents in intact families (b = -.32) relative to those in mother-alone families (b = -10); (b) a significant reduction in antisocial behaviors (t = -2.69) among adolescents in mother-stepfather families (b = -.57) compared with those in mother-alone families (b = -.10); and (c) a significant reduction in antisocial behaviors (t = -2.43) among adolescents in mother-other adult families (b = -.37) relative to those in mother-alone families (b = -.10).

Effects of family conflict on antisocial behaviors. Figure 2.7 shows that an increase in family conflict was associated with a marginal increase in antisocial behaviors (t = -1.90) among adolescents in mother-alone families (b = .38) relative to those in mother-other adult families (b = .21).

Examination of the Models for LOC Effects

The results for locus of control orientation effects on the hypothesized associations among family income, maternal mood problems, family conflict, family warmth, and adolescents' antisocial behaviors and depression are presented. The results obtained from the multi-group path analyses for structural equality are presented first. Subsequent to that, the findings relating to whether locus of control orientation moderates the hypothesized relationships are presented.

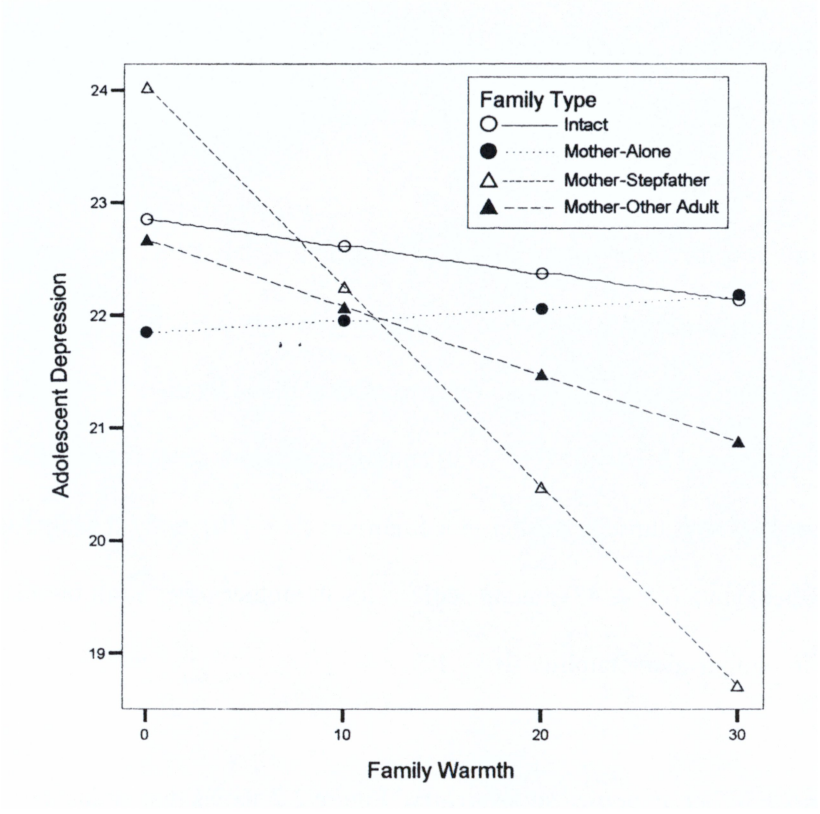

Figure 2.5. *The differential effects of family type on the associations between family warmth and adolescents' depression.*

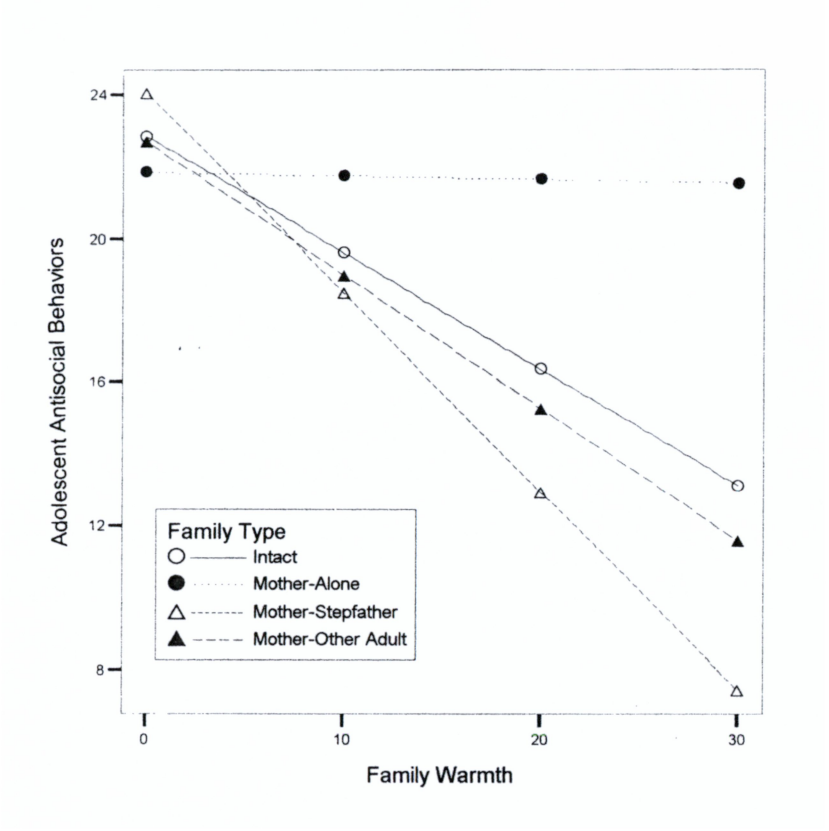

Figure 2.6. *The differential effects of family type on the associations between family warmth and adolescents' antisocial behaviors.*

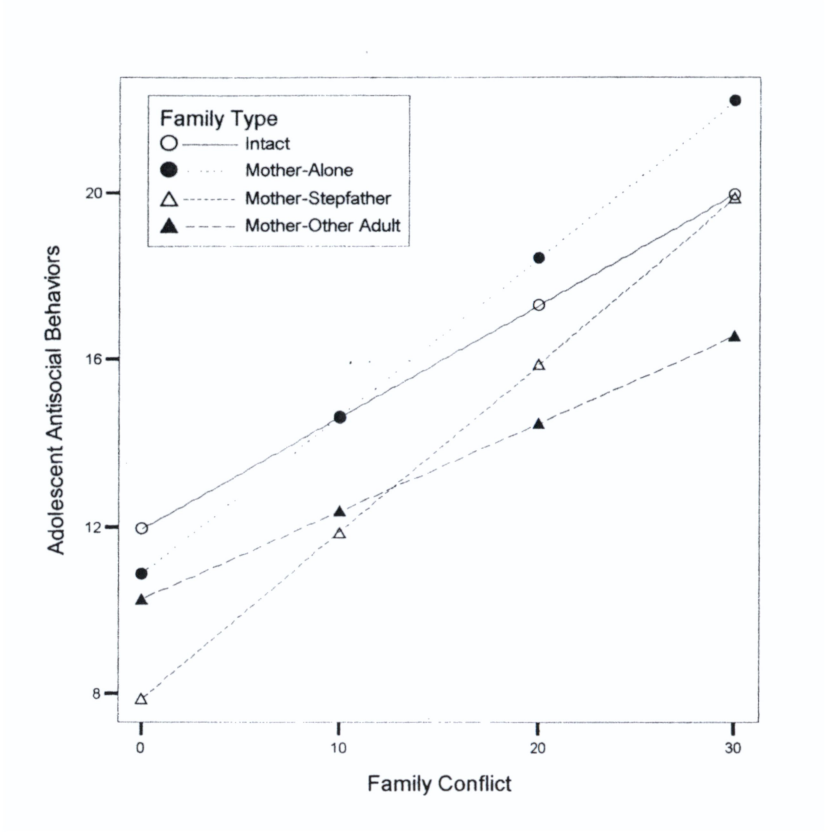

Figure 2.7. *The differential effects of family type on the associations between family conflict and adolescents' antisocial behaviors.*

Assessing structural invariance for LOC orientation. Step 1 [Configural Invariance] assessed whether the structural relationships among the variables in the model were equivalent across LOC orientation. The goodness-of-fit indices presented in Table 2.3 [χ^2(12 df) = 36.59, p < .001; χ^2/df = 3.05; NFI = .99; RMSEA = .05; P-CLOSE = .49] shows the model to be adequate, indicating that the hypothesized path model apply equally, irrespective of LOC orientation classification.

The hypothesized associations among the variables are plotted in Figure 2.8. Here the emphases are on the general pattern of associations among the variables and not on the path weights. For Figure 2.8, the path weights are reported for internal and external locus of control orientations respectively.

Assessing the moderating role of LOC orientation. The results of model comparisons for LOC orientation are reported in Table 2.3. A comparison of Step 2 [Income Invariance] against Step 1 [Configural Invariance] revealed that LOC orientation did not moderate the effects of family income on maternal mood problems (Δdf = 1; $\Delta\chi^2$ = .338; n.s.). A comparison of Step 2 [Income Invariance] against Step 3 [Mood Problems Invariance] revealed that LOC orientation did not moderate the effects of maternal mood problems on family conflict and warmth (Δdf = 2; $\Delta\chi^2$ = 4.530; n.s.). The results of the comparison of Step 2 [Income Invariance] against Step 4 [Competence Invariance] showed that LOC orientation did not moderate the effects of maternal mood problems on adolescents' antisocial behaviors and depression (Δdf = 4; $\Delta\chi^2$ = 5.271; n.s.). A comparison of Step 2 [Income Invariance] against Step 5 [Family Processes Invariance] revealed that there was marginal difference between the two models (Δdf = 8; $\Delta\chi^2$ = 14.937; p = .06), indicating that LOC orientation moderated the effects of family conflict and warmth on adolescents' antisocial behaviors and depression.

Table 2.3. *Comparative Goodness-of-fit for the Models of LOC Effects*

	Goodness-of-Fit			Test of Close-Fit		Comparative Goodness-of-Fit		
Model Label	df	χ^2	NFI	*p*	RMSEA	p-close	Δdf	$\Delta\chi^2$	*p*(d)
Step 1: Configural Invariance	12	36.59	.99	.001	.05	.49			
Step 2: Income Invariance	13	36.92	.99	.001	.05	.58			
Step 2 versus Step 1							*1*	*.34*	*.56*
Step 3: Mood Problems Invariance	15	41.45	.99	.001	.05	.63			
Step 3 versus Step 2							*2*	*4.53*	*.10*
Step 4: Competence Invariance	17	42.19	.99	.001					
Step 4 versus Step 2							*4*	*5.27*	*.26*
Step 5: Family Processes Invariance	21	51.86	.99	.001	.04	.81			
Step 5 versus Step 2							*8*	*14.94*	*.06*

Note: df = degrees of freedom; NFI = normed fit index; *p* = probability of exact fit to the data; RMSEA = root mean square error of approximation; p-close = probability of close fit to the data; Δdf = difference in df; $\Delta\chi^2$ = difference in chi-square tests; *p*(d) = probability of difference tests.

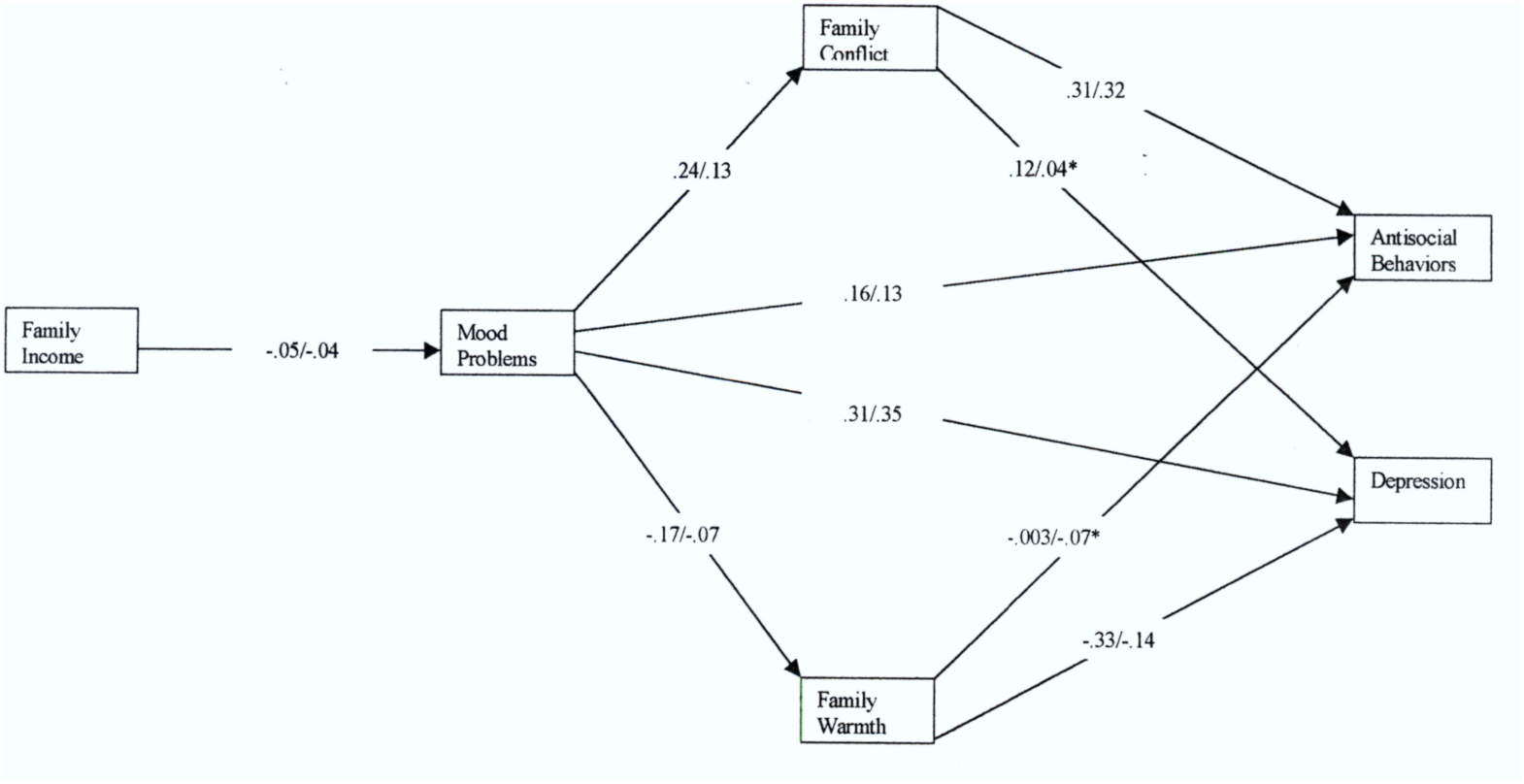

Figure 2.8. *Path-Analytic Model for LOC Orientation Effects.*

Note: Path weights are reported for internal and external locus of control orientations respectively. The asterisks attached to certain path weights, indicate paths that are moderated by LOC orientation.

For the sake of simplicity, the path weights of Step 1 [Configural Invariance] are summarized in Figure 2.8 and Table 2.4. For Figure 2.8, the asterisks attached to some of the coefficients reported mean that those path coefficients are moderated by LOC orientation.

Table 2.4. *Step 1- Configural Invariance for LOC Effects*

	Internal LOC			External LOC		
Model Parameters	Est.	S. E.	*t*	Est.	S. E.	*t*
Income → Mood Problems.	-.05	.01	-3.50**	-.04	.02	-1.98*
Mood Problems → Conflict	.24	.05	4.41**	.13	.05	2.39**
Mood Problems → Warmth	-.17	.05	-3.61**	-.07	.04	-1.59
Mood Problems → Antisocial Behaviors	.16	.05	2.98**	.13	.05	2.52**
Mood Problems → Depression	.31	.03	9.09**	.35	.04	8.83**
Conflict → Antisocial Behaviors	.31	.05	6.77**	.32	.05	6.26**
Conflict → Depression	.12	.03	4.27**	.04	.04	1.18
Warmth → Antisocial Behaviors	-.33	.05	-6.12**	-.14	.06	-2.24*
Warmth → Depression	-.003	.03	-.09	-.07	.05	-1.56

Model: $\chi^2(12df) = 36.59$, $p < .001$; $\chi^2/df = 3.05$; NFI = .99; RMSEA = .05; P-CLOSE = .49

* = $p < .05$; ** = $p < .01$

Plots for the Moderating Effects of Locus of Control Orientation

The following plots represent the moderating effects of LOC orientation on the associations between family conflict and warmth on adolescents' social competence.

Effects of family warmth on antisocial behaviors. Figure 2.9 shows that, for LOC orientation effects, an increase in family warmth was related to a significant reduction in antisocial behaviors (t = 2.36) among adolescents classified as having an internal LOC orientation (b = -.35) relative to those classified as having an external LOC orientation (b = -.14).

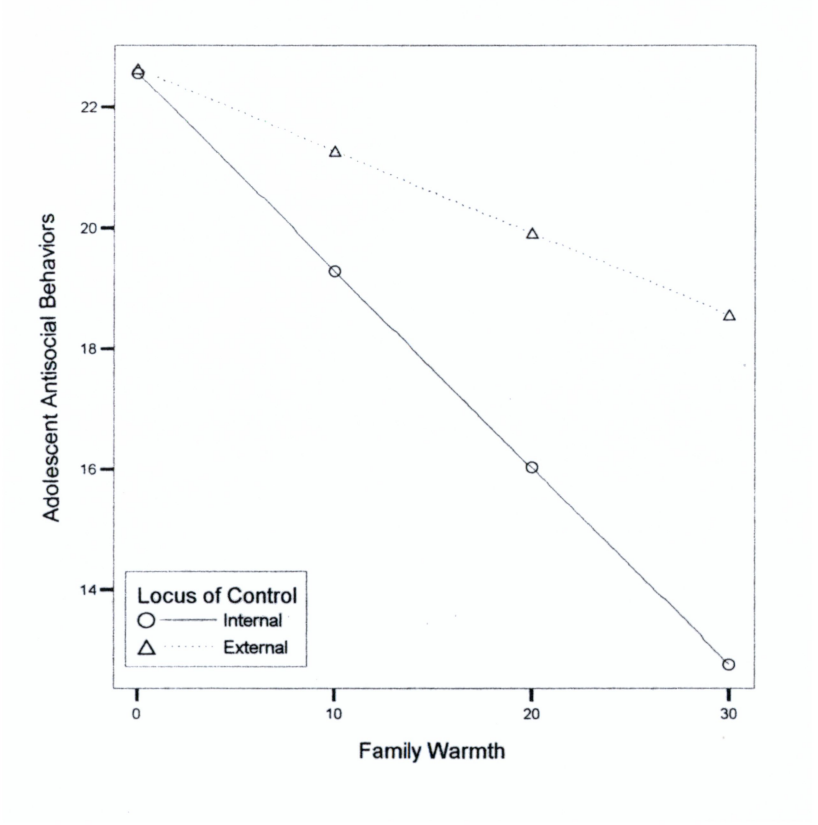

Figure 2.9. *The differential effects of locus of control orientation on the associations between family warmth and adolescents' antisocial behaviors.*

Effects of family conflict on depression. Figure 2.10 revealed that an increase in family conflict was associated with a marginal increase in depression (t = -1.67) among adolescents classified as having an internal LOC orientation (b = .12) relative to those classified as external LOC orientation (b = .04).

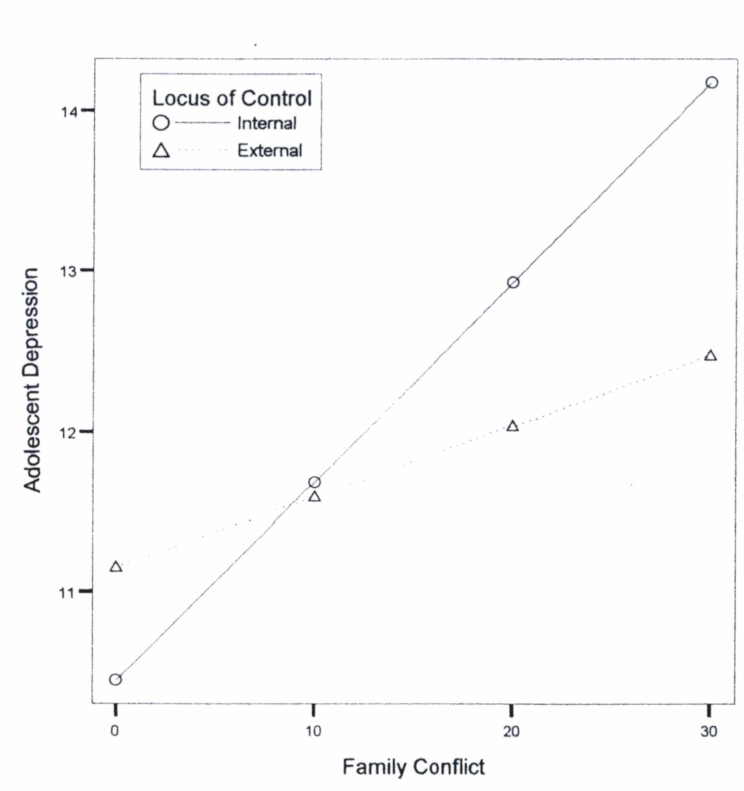

Figure 2.10. *The differential effects of locus of control orientation on the associations between family conflict and adolescents' depression.*

CHAPTER 5

Discussions and Conclusions

The present study had two foci: It examined whether (a) family type and locus of control were differentially related to associations among family economic distress, maternal mood problems, family processes, and adolescents' social competence and (b) the hypothesized structural relationships among the variables in the model hold irrespective of family type and locus of control orientation.

The Hypothesized Model

The findings supported the hypothesized relations among the variables for this sample of families. It was found that (a) a reduction in family income was related to increased maternal mood problems; (b) increased maternal mood problems were associated with heightened family conflict, higher incidence of adolescent antisocial behaviors, elevated levels of adolescent depression, and lower levels of family warmth; (c) elevated levels of family conflict were associated with increased levels of adolescent antisocial behaviors and depression; and (d) increased levels of family warmth were associated with a reduction in adolescents' antisocial behaviors. The analyses also revealed that the model as specified was equally applicable to all family types and to locus of control orientation.

The finding that a reduction in family income was related to increased maternal mood problems lends credence to findings in the literature that economic stress exacerbates problems in adult functioning (Conger et al., 1991, 1992; Elder et al., 1995; McLoyd, 1990; McLoyd et al., 1994). As postulated, maternal mood problems were associated with family processes, and this finding is consistent with the literature that suggests that maternal psychological well-being is associated with both (a) increased family disruptiveness and punitiveness and (b) reduced family

warmth and nurturance (Baldwin et al., 1990; Conger et al., 1991, 1992; McLoyd & Wilson, 1991; McLoyd, 1990; McLoyd et al., 199; Myers & Taylor, 1998) .

Both maternal mood problems and family conflict were related to antisocial behaviors and depression, whereas family warmth was related to only antisocial behaviors. That both maternal mood problems and family conflict were related to the adolescents' social competence is consistent with reports in the literature that maternal moods are related to less nurturing and more punitive interactions with their children (Ary et al., 1999; Conger et al., 1991, 1992; McLoyd, 1990; McLoyd et al., 1994), their negative emotional states (Gonzales, Pitts, Hill & Roosa, 2000; Monahan, Buchanan, Maccoby, & Dornbusch, 1993), and conduct problems (Gonzales et al., 2000). Mood problems might impact adolescents' antisocial behaviors through the inability of mothers to adequately monitor the behaviors of their children (Wahler & Dumas, 1989), or they may well be a result of adolescents' behaviors, a consequence of a reciprocal relationship between mothers and their children (Amhert, 1992; Feldman et al., 1987; Peterson & Rollins, 1987).

The findings that family conflict was related to both antisocial behaviors and depression in adolescents challenges the arguments of McLoyd et al. (in press) cited in Gonzales et al. (2000) that speculates that minority families, including African-American families may not be vulnerable to family conflict because of the extended network of kin. The present study seems to indicate the reverse, in that family conflict had a detrimental effect on adolescents' social competence in the present sample. However, since this study did not examine the extent of social support networks for the African-American families that constituted the sample, it cannot be ascertained whether the arguments of McLoyd et al. would have held with this sample. That increased family warmth was related to reduced antisocial behaviors is consistent with the literature purporting that lower rates of antisocial behaviors are associated with higher levels of family warmth (Baldwin et al., 1980; Masten et al., 1988; Werner & Smith, 1982; Wyman et al., 1992).

Differential Effects of Family Type

The multi-group analyses for the effects of family type and locus of control orientation revealed the salience of the effects of maternal mood problems, and family conflict and warmth on antisocial behaviors and depression differed across family type. The findings regarding the effects of maternal mood problems on depression revealed that overall, adolescents in mother-alone and mother-stepfather families fared worse than the comparison intact and mother-other adult families. The analyses revealed that, for these families, increased maternal mood problems were related to a significant increase in adolescent depression. This finding could be considered analogous to and lend credence to research indicating that children in mother-stepfather families have heightened levels of behavior problems (Bray & Berger; Fine et al., 1993; Hetherington & Clingempeel, 1992). It also was found that increased family warmth was related to a reduction in depression among adolescents in other family types relative to mother-alone families. An increase in family warmth was related to a significant reduction in antisocial behaviors for adolescents in other family types compared with those in intact families.

Finally, an increase in family conflict resulted in increased antisocial behaviors among adolescents from mother-alone families relative to other families. Although social support was not examined in this study, it is reasonable to speculate that for other family types, the presence of a second adult ameliorated the negative effects of conflict on adolescents, in that adolescents had other adults to turn to when they had conflicts with one parent. However, for adolescents from mother-alone families, the lack of support from other adults may have alienated them and resulted in increased antisocial behaviors.

The findings regarding the moderational role of family structure are consistent with the findings of Baer (1999), who reported that family structure was related to the amount of conflict: Nuclear families had less conflict than single-parent and mother-stepfather families. Kellam et al.

(1977) also reported a relationship between family structure and the mental health of children, with mother-alone families entailing the highest risk. An examination of the correlations shows that mother-alone families, relative to other family types, had significantly lower levels of education and income and higher levels of maternal mood problems. The finding that mother-alone families had lower incomes relative to other family types is consistent with the arguments of Biblarz and Raftery (1999) and Biblarz et al. (1997) that the adverse outcomes of children in single-parent families may be the result of the greater likelihood of the lower educational attainment and consequent lower income of single parents.

It is also conceivable that the distress experienced by mother-alone families as a function of their lower incomes may have translated into their family relationships with their adolescent children. Perhaps, as was suggested by Wahler and Dumas (1989), distressed mothers are unable to attend to and monitor the behaviors of their children. Some studies (Patterson, 1982; Patterson & Stouthamer-Loeber, 1984) have demonstrated that parental monitoring and peer relations become increasingly important as children grow older and spend relatively more unsupervised time with peers outside the home.

Given the consistent finding in the literature that peer group constitutes a key variable in the initiation and prolongation of externalizing behavior in middle childhood and adolescence and that imposing coercive discipline practices on adolescents is difficult (Dishion, 1990a; Dishion et al., 1991; Patterson & Bank, 1991; Rutter, 1994), it is conceivable in the present study that parental supervision and monitoring were the mechanisms that mediated adolescents' engagement in antisocial behaviors rather than family conflict and family warmth as hypothesized. However, given that parental monitoring and supervision were not examined in this study, this suggestion remains only a speculation.

Differential Effects of Locus of Control Orientation

For locus of control orientation, the effects of family warmth and conflict on antisocial behaviors and depression differed across groups. The differential effects of locus of control revealed that an increase in family warmth was related to a significant reduction in antisocial behaviors for adolescents classified as having an internal locus of control orientation. On the contrary, an increase in family conflict was related to an increase in depression among adolescents classified as having an internal locus of control orientation relative to those of an external orientation (Luthar, 1991; Parker et al., 1990; Werner & Smith, 1982). It is conceivable that those classified as having an internal locus of control of orientation may blame themselves for their conflictual/aversive family environment, whereas those classified as having an external orientation might perceive their family environment as being the result of external factors and, thus, not experience any internalizing disorders.

Contributions

This study makes important contributions to our understanding of the linkage between economic distress and African-American adolescents' social competence. Conceptualizing family economic distress as a distal variable, this study shows the proximal processes through which economic distress impacts adolescents' social competence. The study suggests that different family processes may be linked to different developmental outcomes. For example, across all family types and regardless of the child's locus of control orientation, it consistently was found that family conflict and maternal psychological well-being were strongly predictive of both adolescents' antisocial behaviors and depressive symptoms. In contrast, family warmth was consistently linked to only adolescent antisocial behaviors. Perhaps it may be the case that family warmth protects adolescents against antisocial behaviors, but it has no significant effect on

depressive symptoms.

The findings of this study revealed that the same structural model of the relationships among economic distress, maternal mood problems, family conflict and warmth, and adolescents' social competence were applicable irrespective of family type and locus of control orientation. However, the results showed that family type and locus of control were differentially related to the associations among income, maternal psychological well-being, family process, and the outcome variables.

The results obtained in the analyses are important because they suggest a more optimistic view of children's adjustment. If the association between economic distress and children's social competence is mediated by the quality of parenting, such deterioration in children's social competence might be prevented by helping parents to sustain effective parenting practices in the face of adversity.

Limitations and Recommendations

There are limitations of this study that are worth mentioning. First, even though the model tested supports the findings of earlier studies using different samples and ethnic groups, the model for the present study is not exhaustive. Equivalent models with different paths and variables than those included in this study also could account for the variation that was observed in this study (Spirtes, Richardson, Meek, Scheines, & Glymour, 1998). Additionally, although the models had a good fit, it is not the same as strength of relationship. The lower correlations/path coefficients in the model could have made it easier to find good fit because it makes it harder to reject an improperly specified model as models with stronger correlations/path weights have more power to detect an incorrect model. Additionally, a good fit does not mean each particular part of the model fits well.

The paths are only correlational and do not imply causation. The association between maternal mood problems and adolescent depression may reflect the effect of the adolescent on the parent. This is consistent with the idea that socialization is bidirectional and that children do contribute to negative parenting and antisocial behaviors within a reciprocal parent-child relationship (Paternoster, 1988; Patterson, 1982). The data set had limitations in that the variables of interest were collected only at Wave 3 from the respondents making a longitudinal assessment of the model impossible. Another limitation of the study was the use of data from a single informant, the mother who rated both parental and child behaviors and family processes. The sample also consisted of only African-American adolescents from a low-income neighborhood, therefore the results may not be generalizable.

Given these limitations, it would be useful to examine the hypothesized model using a more diversified sample to examine whether the results obtained here holds for other ethnic and income groups. Second, past research suggests a mediating role for parental monitoring and peer influence as mechanisms affecting adolescents's social competence, future studies could include both constructs to assess their effects. Thus, the goal would be to explore alternative models that examine the link between economic distress and adolescents' social competence. Lastly, longitudinal analysis would help explicate some of the mechanisms through which economic distress impacts adolescents' social competence over time.

In summary, the results of this study supports an ecological approach that distinguishes between distal and proximal variables (Baldwin et al., 1990). Despite the limitations, the results suggest that family type and locus of control orientation moderated the associations between family processes and adolescents' social competence. In all, it appeared that, for adolescents in mother-alone families, maternal mood problems was an important variable because it was related to greater antisocial behaviors among these adolescents than among those in any other family type.

Additionally, a reduction in family warmth was associated with a greater increase in antisocial behaviors in mother-stepfather and mother-other adult families compared with mother-alone families.

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PART 3

STUDY 2

ARE THERE TEMPERAMENT, GENDER, OR FAMILY TYPE DIFFERENCES IN THE ASSOCIATIONS AMONG ECONOMIC DISTRESS, FAMILY AND PEER FACTORS, AND AFRICAN-AMERICAN ADOLESCENTS' ANTISOCIAL BEHAVIORS?

Abstract

The effects adolescent temperament, gender, and family type on the associations among economic distress, maternal mood problems, family processes, association with deviant peers, and antisocial behaviors were studied. The third wave of data from the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1966-1976, was used. The sample consisted of African-American adolescents and their mothers with a total sample size of 840 mother-adolescent child pairs and four family types. The results of using path analysis with maximum likelihood estimation showed that (a) the same structural model holds across family type, temperament, and gender; (b) the effects of family processes on antisocial behaviors differed by family type and adolescent temperament; and (c) there were no gender effects evident.

CHAPTER 1

Introduction

Antisocial behaviors constitute a social problem because of the volume, seriousness, and the level of consequences for victims and society at large, as well as for perpetrators and their families (Dishion et al., 1995; Smith and Stern, 1997). Two theoretical perspectives, the temperamental (Gottfredson & Hirschi, 1990; Moffitt, 1993; Quay, Roth, & Shapiro, 1987) and social influence (e.g., Conger & Simons, 1997; Laub & Sampson, 1993; Patterson, Reid, & Dishion, 1992; Simons, Johnson, Conger, & Elder, 1998; Simons, Johnson, Beaman, Conger, & Whitbeck, 1996; Thornberry, 1987) approaches, have been offered to explain antisocial behaviors. The temperamental position posits that continuity in antisocial behavior is an expression of an underlying trait. It asserts that children who are more impulsive, hyperactive, and difficult than other children are at increased risk for antisocial behaviors (Gottfredson & Hirschi, 1990; Moffitt, 1993; Quay et al., Roth, & Shapiro, 1987). In contrast, the social influence perspective (Conger & Simons, 1997; Laub & Sampson, 1993; Patterson et al., 1992; Simons et al., 1998; Simons et al., 1996; Thornberry, 1987) suggests that social influences account for antisocial behaviors. Emphasizing social control and social learning processes, investigators using this approach propose that children are at increased risk because they are raised in an environment of inept parenting. They posit that, given the reciprocal nature of the parent-child relationship, not only does ineffective parenting increase the probability of child antisocial behaviors but that problematic child behavior often is followed by a reduction in parental efforts to monitor and discipline (Lytton, 1990; Patterson et al., 1992).

Moffitt (1993a) distinguished between two types of progressions toward antisocial behaviors: life-course persistent and adolescent-limited individuals. Life-course persistent individuals begin involvement in antisocial behaviors at an early age and continue their

participation through adolescence into adulthood, whereas adolescent-limited individuals do not engage in antisocial behaviors until they reach adolescence and desist by young adulthood.

Various developmental theorists (e.g., Loeber & LeBlanc, 1990; Nagin & Land, 1993; Moffitt, 1993a) argue that the correlates of antisocial behaviors vary as a function of age. For example, antisocial behavior that begins in childhood has been found to be more related to measures of verbal abilities and behavioral self-control (Bartusch, Lynam, Moffitt, & Silva, 1997; Moffitt, 1990; Moffitt, Lynam, & Silva, 1994), whereas adolescent onset has been found to be more related to delinquent peers (Bartusch et al., 1997; Caspi, Lynam, Moffit, & Silva, 1993; Simons, Wu, Conger, & Lorenz, 1994).

If, as indicated earlier, temperamental and social processes account for the genesis and continuity of antisocial behaviors, what are the processes through which poverty impacts the development of antisocial behaviors? If economic distress affects the development of antisocial behaviors does adolescent temperament, gender, and family type moderate that association? It has been consistently reported that poverty is associated with parental psychological well-being, family conflict, chronic and acute life stressors, rejecting parenting practices, and a greater reliance by parents on corporal punishment (Conger et al., 1991, 1992; Halpem, 1990; McLoyd, 1990; McLoyd et al., 1994). Economic distress also has been linked to internalizing problems, academic difficulties, substance use and abuse, adolescent parenthood, and delinquency (Conger et al., 1992; Halpem, 1990; Hammond & Yung, 1994; McLoyd et al., 1994).

Wahler and Dumas (1989) suggested that parents with mood problems are unable to effectively attend to and monitor their children. It is reasonable to then argue that the inability of parents to monitor children makes the children's association with deviant peers more likely. This dynamic may be engendered by either (a) parental mood problems heightening family conflict and increased family conflict resulting in adolescents gravitating toward deviant peers or (b) parental

mood problems affecting parental ability to be warm and affectionate toward their children, in turn making children seek affective affiliation with their peers. As adolescents associate with peers they may engage in antisocial activities through (a) the modeling of antisocial behaviors by peers, (b) receiving reinforcement from peers for engaging in antisocial behaviors, or (c) seeking acceptance from peers by engaging in antisocial behaviors (Dishion et al., 1995; Loeber & Hay, 1997).

Are the associations among economic distress, family processes, associations with peers, and antisocial behaviors moderated by adolescent temperament, gender, or family type? Some researchers have found family structure to moderate children's social competence (i.e., Bray & Berger, 1993; Cooper et al., 1995; Fine et al., 1993; Hetherington & Clingempeel, 1992 Kellam et al., 1977; McLanahan, 1985), whereas others have not come to this conclusion (Ensminger, 1990; Gray-Ray & Ray, 1990; Salem et al., 1998). The issue at stake is that studies usually examine a dichotomy of family types (i.e., single-parent versus intact biological families) thus making it difficult to assess whether there are significant differences among multiple family constellations.

Individual factors may serve in either a vulnerability or protection role (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998; Richters & Weintraub, 1990). Individual traits such as a difficult temperament and impulsivity can be perceived as vulnerabilities that increase the odds of maladjustment because they have been positively associated with antisocial behaviors (e.g., Gottfredson & Hirschi, 1990; Kazdin, 1987; Lytton, 1990, Moffitt, 1993). Individual assets that have been found to serve a protective function include an easy temperament (Werner, 1985; Werner & Smith, 1982) and an internal locus of control (Luthar, 1991; Parker et al., 1990; Werner, 1990; Werner & Smith, 1982).

What role does gender play in the etiology of antisocial behaviors? Is the expression of

antisocial behaviors similar in both sexes? Are the pathways to antisocial behaviors similar for both sexes? Some researchers have suggested gender differences (Crick, 1996; Crick & Grotpeter, 1995), while others (e.g., Chesney-Lind & Sheldon, 1998) have reported no gender differences. Cairns and Cairns (1994) suggested that the pathways for boys and girls might both be similar and different, whereas Talbott and Thiede (1999) suggested that the pathways are different.

Rationale for the Study

Research on the processes through which family structure affects child well-being has focused on two central themes: economic resources and parental behaviors. Although there is evidence showing economic resources to be salient in the effect of family type on children, the role of parental behaviors is less clear because few attempts have been made to integrate the two explanations (Thomson et al., 1994). The current studies focused on whether temperament, gender, and family type moderate the associations among economic distress, parental mood problems, family processes, adolescents' association with deviant peers, and their antisocial behaviors. This study is different from previous research in the following ways: (a) It focused on the moderational role of four family types, temperament, and gender on the hypothesized associations, and (b) it has used an entirely African-American sample.

CHAPTER 2

Literature Review

Antisocial behaviors are conceptualized as developing as a function of the external context, familial influences, and child characteristics. The literature review is organized around three main themes: (a) contextual factors, (b) familial processes and factors, and (c) intrapersonal factors.

Economic Distress, Parenting, and Adjustment

There is consensus among researchers that economic distress affects the context of parenting and, consequently, children's adjustment. Poverty has been shown to be associated with parental psychological well-being (Conger et al., 1992; Dressler, 1985; McLoyd, 1994; Myers & Taylor, 1998), marital conflict (Ary et al., 1999; Conger et al., 1992; Furstenberg, 1976), and aversive and hostile childrearing practices (Conger et al., 1984; Halpem, 1990; Lempers et al., 1989; McLoyd et al., 1994; McLoyd & Wilson, 1991; Myers & Taylor, 1998). Family processes in turn are related to children's mood (Ary et al., 1999; Lempers et al., 1989; McLoyd et al., 1994) and externalizing problems (Conger et al., 1992; Myers & King, 1983). Darling and Steinberg (1993) and Steinberg, Mounts, Lamborn, and Dornbusch (1991) have reported that a reduction in family warmth is associated with increased antisocial behaviors.

Several investigators (e.g., Elder, Van Nguyen, & Caspi, 1985; Elliot, Huizinga, & Ageton, 1985; Loeber & Dishion, 1983) have noted that antisocial behaviors are more prevalent among children from lower SES families than their higher SES counterparts. For example, Elliot et al. (1985) and Loeber and Dishion (1983) have reported that lower socioeconomic status was predictive of antisocial behaviors in the adolescents they studied, and Elder et al. (1985, 1986), reporting on the impact of the Great Depression on parenting practices and child outcomes, noted

that socioeconomic status was significantly related to parental irritability and the behavior problems of children.

Conger et al. (1992), using a sample of white middle-class intact families, reported that economic stress exacerbated problems in parental functioning and marital interactions, which were then related to adolescent adjustment through parental child-rearing behaviors. McLoyd et al. (1994), using an African-American sample, also found that economic distress influenced mothers' well-being, which in turn led to negative perceptions of their maternal role and more punitiveness toward their children. Increased punitiveness was associated in turn with negative adjustment in the adolescents. Although parental psychological well-being is associated with children's antisocial behaviors, the causal loci are not clear because it is possible that antisocial children impact their parents' moods (McLeod, Kruttschnitt, & Dornfield, 1994).

Theorists (e.g., Conger & Simons, 1997; Laub & Sampson, 1993; Patterson et al., 1992; Sampson & Laub, 1990, 1993; Simons et al., 1998; Thornberry, 1987) emphasizing social control and social learning processes have argued that children are at risk for developing antisocial behavior during adolescence because they are often raised in an environment of inept parenting. These theorists have suggested that, not only does ineffective parenting increase the probability of child behavior problems, but that difficult, hostile, or obstinate child behavior often is followed by a reduction in parental efforts to monitor and discipline (Lytton, 1990; Patterson et al., 1992).

Patterson's (1982, 1986) coercion model suggests that aversive parent-child relations are the processes through which children learn antisocial behaviors. He has suggested that some parents not only fail to interrupt their children's aversive behaviors, but also contingently reinforce them by giving in. At the same time, parents are negatively reinforced when giving in stops the aversive behavior. Patterson (1986) and Patterson and Bank (1990) reported a strong relationship between harsh, abrasive, and inconsistent parent discipline practices and children's antisocial

behaviors.

Protective Family Process Variables

Family warmth and parental support and monitoring are family process variables that have been found to ameliorate the adverse effects of economic distress on children's adjustment (Abell et al.,1996; Baldwin et al., 1990; Masten et al., 1988; Myers & Taylor, 1998; Taylor, 1996; Taylor et al., 1993; Werner & Smith, 1982; Wyman et al., 1992). Taylor (1996) reported that parental support was associated with less problem behavior and psychological distress among African-American adolescents. Other empirical findings have revealed that (a) warm, accepting, and firm authoritative parenting that involved parental monitoring were associated with psychosocial adjustment among African-American adolescents (Baldwin et al., 1990; Masten et. al., 1988; Taylor et al., 1993; Werner & Smith, 1982; Wyman et al., 1992) and (b) stress-resistant children had mothers who were less distressed and used less rejecting parenting strategies compared with mothers of stress-affected children (Myers & Taylor, 1998).

Seidman et al. (1999) reported that poor children in functional families had parents who provided positive support and were involved with their children and that these children had significantly fewer depressive symptoms and exhibited fewer antisocial behaviors than did poor children in dysfunctional families. Abell et al. (1996) also reported that a democratic parenting style was associated with higher social competence scores than other styles of parenting among poor families. The literature on family processes and children's adjustment does not adequately address the interaction of family and child factors. Given the reciprocal nature of the parent-child relationship, it is conceivable that child attributes influence the parent-child relationship. Thus, ignoring exploration of how child attributes affect the parent-child interactional process obscures our understanding of the role child factors play in children's own adjustment.

Family Structure and Children's Adjustment

Research on the effects of family structure for African-American children's social competence is inconclusive. Some investigators (e.g., Baer, 1999; Bartko & Sameroff, 1999; Cooper et al., 1995; Kellam et al, 1977; Kim et al., 1999; McLanahan, 1985) have reported negative effects, whereas other studies (e.g., Ensminger, 1990; Gray-Ray & Gray, 1990; Lindblad-Goldberg et al, 1988; Salem et al., 1998) have not found any deleterious effects. For example (a) single-parent or stepparent family type has been associated with increased risk for increased drug use (Cooper et al., 1995), (b) father-absence has been related to increased high-school dropout rate (McLanahan, 1985), (c) nuclear family relative to a single-parent family has been associated with significantly less family conflict (Baer, 1999), (d) mother-alone families entail greater risks for depression and behavior problems (Kellam et al., 1977), (e) adolescents from single-parent families relative to those from two-parent families have heightened problem behaviors (Bartko & Sameroff, 1999), and (f) children from stepparent families have heightened behavior problems relative to those from nondivorced parents (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992). Kim et al. (1999) reported that children in stepfamilies showed greater association with delinquent peers and externalizing behavior than was found for children in non-stepfamilies. Additionally, mothers and stepfathers in stepfather families showed more negative behaviors toward adolescents than did mothers and biological fathers in non-stepfamilies.

Other investigators have not found family structure to be related to adverse outcomes. For example, family structure has been found to be unrelated to substance use (Ensminger, 1990) and delinquency (Gray-Ray & Ray, 1990). Salem et al. (1998), in their study of the effects of family structure and family process on behavior problems and psychological well-being, found no family structure effects on behavior problems when age was controlled for, and no family

structure effects on psychological well-being. Lindblad-Goldberg et al. (1988) concluded that low-income African-American families headed by single mothers who focus on positive experiences function more effectively in the face of adverse social conditions.

Biblarz and Raftery (1999), Biblarz et al. (1997), and Thomson et al. (1994) have argued that the economic disadvantage of single-mother families, a result of unemployment or low occupational status and lower levels of parental support, account for the observed detrimental family structure effects. In regard to stepparent families, Kim et al. (1999) suggested that the challenges stepfamilies face in adjusting to their relationships seem to counteract any advantage of the addition of a stepparent. For example, stepchildren resist stepparents' attempts at discipline, which leads stepfathers to become more disengaged and less warmth and involved than nondivorced biological fathers in two-parent families (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992).

Peers and Antisocial Behaviors

Studies by Thornberry, Lizotte, Krohn, Farnworth, and Jang (1991) and Jang and Smith (1997) support the developmental notion that parents' effects on children wane over the course of their adolescence as new influences, such as peer groups, become more important. Peer relationships in adolescence play an important role in the development of both adaptive and maladaptive outcomes (Laird, Pettit, Dodge, & Bates, 1999; Loeber & Hay, 1997). Research on adolescent friendships usually have focused on either the quality of peer relationships (connectedness to friends) or the behavioral characteristic of individuals—overall levels of antisocial behaviors (Laird et al., 1999).

Dishion (1990a, 1990b), Patterson, DeBaryshe, and Ramsey (1989), and Thornberry (1987) and Thornberry et al. (1994) have proposed a social interactional-facilitation-enhancement

model that suggests that both individual traits and deviant peers contribute to predicting antisocial behaviors. This model proposes that either (a) deviant friends increase the relationship between antisocial traits and delinquency (Dishion, 1990a, 1990b) or (b) antisocial dispositions condition the degree to which deviant friends influence antisocial behaviors (Vitaro, Tremblay, Kerr, Pagani, & Bukowski, 1997).

Adolescents' behavior tends to mirror that of their friends and peer groups because there are mutual socialization processes operating in adolescent friendships that contribute to the ongoing development of antisocial behaviors. For example, adolescents' antisocial behaviors are predicted by the extent to which adolescents' peers are involved in substance use and antisocial activities (e.g., DiLalla & Gottesman, 1989; Ennett & Bauman, 1994; Laird et al., 1999; Loeber & Hay, 1997; Moffitt, 1993a; Simons, Wu, Conger, & Lorenz, 1994; Tolson & Urberg, 1993; Warr & Stafford, 1991). Dishion et al. (1995) argued that deviant socialization occurs in three ways: (a) Antisocial behaviors disrupts positive peer relations, depriving adolescents of the benefits of positive peer learning; (b) adolescents may model and reinforce antisocial behaviors in others; and (c) within some friendship networks support for antisocial behaviors is established by providing reinforcement and opportunities for antisocial behaviors.

Adolescents' associations with deviant peers has been shown to be a function of low parental control, discipline, or supervision and monitoring; the affective nature of the parent-child relationship—attachment, closeness, acceptance (Ary et al., 1999; Dishion et al., 1991; Elliott, Huizinga, & Ageton, 1985; Jensen, 1972; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995; Mason, Cauce, Gonzales, & Hiraga, 1994; Poole & Regoli, 1979; Snyder et al., 1986; Wahler & Dumas, 1989; Warr, 1993b); and the reciprocal relationship between delinquency and parental supervision (Agnew, 1985; Amhert, 1992; Liska & Reed, 1985; Lytton, 1990; Paternoster, 1988; Peterson & Rollins, 1987). Dishion et al. (1991) and Snyder et al. (1986) have

reported that low parent monitoring increases opportunities for associating with deviant peers. Poole and Regoli (1979) reported that delinquent friends had a greater impact on delinquent behavior for adolescents who had weak family support than for those who had strong family support. Similarly, Mason et al. (1994) observed that a positive mother-adolescent relationship reduced the influence of deviant friends. In contrast, Warr (1993b) reported that affective attachment to parents successfully inhibited the establishment of deviant friendships.

The findings of research on the reciprocal nature of family relations and behavior suggests that the child effects exist alongside parent effects (Amhert, 1992; Peterson & Rollins, 1987). Lytton (1990) argued that both parents and children are affected by the other's behavior and display a reciprocal causation, whereby difficult children provoke parenting responses that actually may make the children's behavior worse. Liska and Reed (1985) found reciprocal effects between delinquency and attachment with a stronger effect for delinquency reducing parents' attachment, as opposed to weak attachment increasing delinquency. Paternoster (1988) on the other hand, found a feedback loop in which weakened parental supervision leads to increasing delinquency, which then further undermines their supervision.

Gender and Antisocial Behaviors

There are conflicting findings in the literature regarding gender differences in antisocial behaviors. To understand these conflicting results, it is important to consider the form of antisocial behaviors being assessed, developmental stage, and reporting agent (Dishion et al., 1995; Tieger, 1980). Two issues pertinent to the discussions of gender differences are the following: (a) Do boys and girls follow the same pathways to antisocial behaviors? and (b) do boys and girls engage in the same forms of antisocial behaviors?

The notion of pathways provides an understanding of the processes leading to antisocial

behaviors. Cairns and Cairns (1994) suggested that the pathways to antisocial behaviors for boys' and girls' might be both similar and different from each other. In contrast, Talbott and Thiede (1999) suggested that the pathways for girls are different from those of boys.

Caspi, Lynam, Moffitt, and Silva (1993) presented evidence of two trajectories into female antisocial behavior. Girls in one pathway followed a path similar to that outlined by Patterson et al. (1992) for boys. These girls exhibited antisocial behavior during childhood, and in adolescence they associated with deviant peer groups and exhibited antisocial behavior. Girls without a history of childhood antisocial behavior followed a different path. Early menarche had an indirect effect on delinquency through increased involvement with deviant peers.

Loeber et al. (1993) and Loeber, Keenan, and Zhang (1997a) identified three pathways that boys follow from childhood to adolescence: (a) an authority conflict pathway characterized in childhood by stubborn behavior and in adolescence by defiance and avoidance of authority; (b) a covert pathway, characterized by childhood minor covert behaviors such as lying and shoplifting and followed by property damage and moderate to serious forms of delinquency in late childhood and adolescence, such as fraud and burglary; and (c) an overt pathway characterized by aggressive acts in childhood, such as annoying and bullying, and followed by physical fighting and violence in late childhood and adolescence.

The findings reported in the literature regarding the forms of expression are inconclusive. Some researchers (e.g., Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988; Cairns, Cairns, Neckerman, Gariepy, & Ferguson,1989; Crick, 1996; Crick & Grotpeter, 1995; Ferguson, Norwood, & Lynskey, 1994; Hay, 1994; Rhodes & Fischer, 1993; Salem, Zimmerman, & Notaro, 1998) have suggested that gender has differential effects, with girls favoring verbal and indirect forms of aggression, such as, gossiping, exclusion, and character defamation. Boys on the other hand, tend to favor the use of force. A longitudinal study by Cairns et al. (1988) suggested that,

as girls' entered adolescence, their conflicts centered around acceptance and affiliation, whereas boys' conflict tended to be confrontational. Additionally, girls increased the use of indirect forms of aggression (e.g., gossiping, ostracism).

In contrast, Chesney-Lind and Sheldon (1998), using girls' self-reports, reported that the girls they studied tended to engage in antisocial behaviors (e.g., gang fighting, hitting someone) that are considered characteristic of boys. By adolescence, these researchers reported that girls who were not previously aggressive sometimes developed antisocial behavior for the first time, and their antisocial behaviors–drinking, skipping school, and being disruptive–were similar to those of boys. Also, the girls reported participating in more serious antisocial behaviors, such as gang fighting and hitting someone, that are more commonly found among adolescent boys.

Temperament and Antisocial Behaviors

Temperament refers to constitutionally based individual differences in reactivity and self-regulation that may be influenced over time by heredity, development, and experience (Rothbart & Ahadi, 1994). The temperamental explanation contends that antisocial behavior is largely an expression of an underlying trait (Gottfredson & Hirschi, 1990; Kazdin, 1987; Moffitt, 1993; 1997; Quay, Routh, & Shapiro, 1987). The temperamental perspective suggests that behavioral tendencies such as aggression, impulsivity, and hyperactivity first emerge during childhood and remain relatively stable across the life course. These behavioral tendencies lead to childhood oppositional/defiant behavior, adolescent delinquency, and adult criminal behavior.

Although the temperamental perspective views parental behavior as an important cause of antisocial tendencies in children, the effect of parenting is seen as largely limited (Gottfredson & Hirschi, 1990). Thomas and Chess (1984) and Chess and Thomas (1999) have reported data suggesting that in early childhood difficult children may be at an increased risk for antisocial

behaviors and that temperament is a significant factor in the way children influence their own development. In adolescence, there is some correlation between teenagers' report of sensation seeking and their reports of problem behaviors (Zuckerman, 1979). Difficult temperament, as reported by parents, is associated with a greater likelihood of behavioral problems and aggression (Kingston & Prior, 1995; Sanson, Smart, Prior, & Oberklaid, (1993), although it may interact with other risk factors such as the quality of parent-child relationships.

Cross-sectional and longitudinal studies with children and adolescents indicate that behavioral undercontrol—the inability to resist an impulse and exercise self-restraint—is related to problem behaviors (Caspi, Henry, McGee, Moffitt, & Silva, 1995; Henry, Caspi, Moffitt, Silva, 1996; Watson & Clarke, 1993). Stice and Gonzales (1998) reported that adolescent temperament moderated the relations between parenting and problem behaviors. Specifically, Stice and Gonzales (1998) found that high behavioral undercontrol was a risk factor for antisocial behavior and substance use, high negative affectivity was a risk factor for antisocial behavior, and low negative affectivity was a risk factor for substance use.

In summary, research reports show that economic distress impacts parental moods and family processes to adversely influence children's antisocial behaviors and that family process variables, such as family warmth, and parental responsiveness, ameliorate the negative impact of poverty. Findings regarding the impact of differential effects of family structure and gender on antisocial behaviors are inconclusive, whereas the empirical findings on temperament suggest that it is differentially related to antisocial behaviors. Research reports also show that a lack of affective attachment between parents and their children and lower levels of parental monitoring and supervision of adolescents increases the adolescents' association with peers and engagement in antisocial activities.

Research Questions

The present study sought to examine whether (a) temperament, gender, and family type moderate the associations among family economic distress, maternal mood problems, family processes, association with deviant peers, and adolescents' antisocial behaviors and (b) the hypothesized structural relationships among the variables in the model holds irrespective of temperament, gender, and family type.

Conceptualization of Antisocial Behaviors

There is little acceptance of a taxonomy of antisocial behavior for adolescents (Moffitt, 1993). The reasons for lack of agreement include the range of antisocial behaviors studied, the type of antisocial behaviors, and the methods of reporting (Marcus, 1999). Antisocial behaviors involve both overt and covert acts (Loeber & Schmaling, 1985). Overt acts are both interpersonal and confrontational and include behaviors such as arguing with, yelling at, and hitting someone. In contrast, covert acts involve behaviors like lying and stealing.

When the constructs assessed by self-report measures have been broad and a variety of behaviors included, a unidimensional structure has been found by some researchers (Donovan & Jessor, 1985; Donovan, Jessor, & Costa, 1988) and a multidimensional structure by others (Achenbach & Edelbrock, 1991). When the construct assessed has been more limited, findings have been supportive of multidimensionality (Shaw, Wagner, Arnett, & Aber, 1992).

Patterson et al. (1992) in a study comparing a two-factor and one-factor model of antisocial behaviors, found support for the two-factor model of overt and covert antisocial traits. However, Patterson et al. (1992) reported that the correlations between the two factors were high. Comparing the two-factor and the one-factor model, Patterson et al. (1992) did not find any significant difference and suggested that the one-factor model could be used to adequately

describe the observed pattern of relationships. For the present study, I used a composite index of antisocial behavior. The index consisted of items that assessed truancy, school problems, stealing, substance use, and aggressive behaviors.

The Hypothesized Model B

Figure 3.1 shows the hypothesized structural relations among the variables in the present study presented in the form of a recursive path diagram. In path diagrams, a distinction is made between exogenous and endogenous variables. The variability of exogenous variables are determined by causes outside the model, whereas that of endogenous variables are determined in part by both exogenous and other endogenous variables. Family income was conceptualized as an exogenous variable; maternal mood problems, family conflict, family warmth, and association with deviant peers were treated as mediating endogenous variables; and adolescent antisocial behaviors as endogenous variables. Temperament, gender, and family type were conceptualized as moderating variables.

Figure 3.1 shows (a) family income as impacting maternal mood problems; (b) maternal mood problems as influencing family conflict and family warmth; (c) family conflict as affecting both association with deviant peers and antisocial behaviors; (d) family warmth impacts both association with deviant peers and antisocial behaviors; and (e) association with deviant peers as affecting antisocial behaviors. The differential effects of temperament, gender, and family type on the hypothesized relations among the variables are indicated by the three arrows pointed at family income.

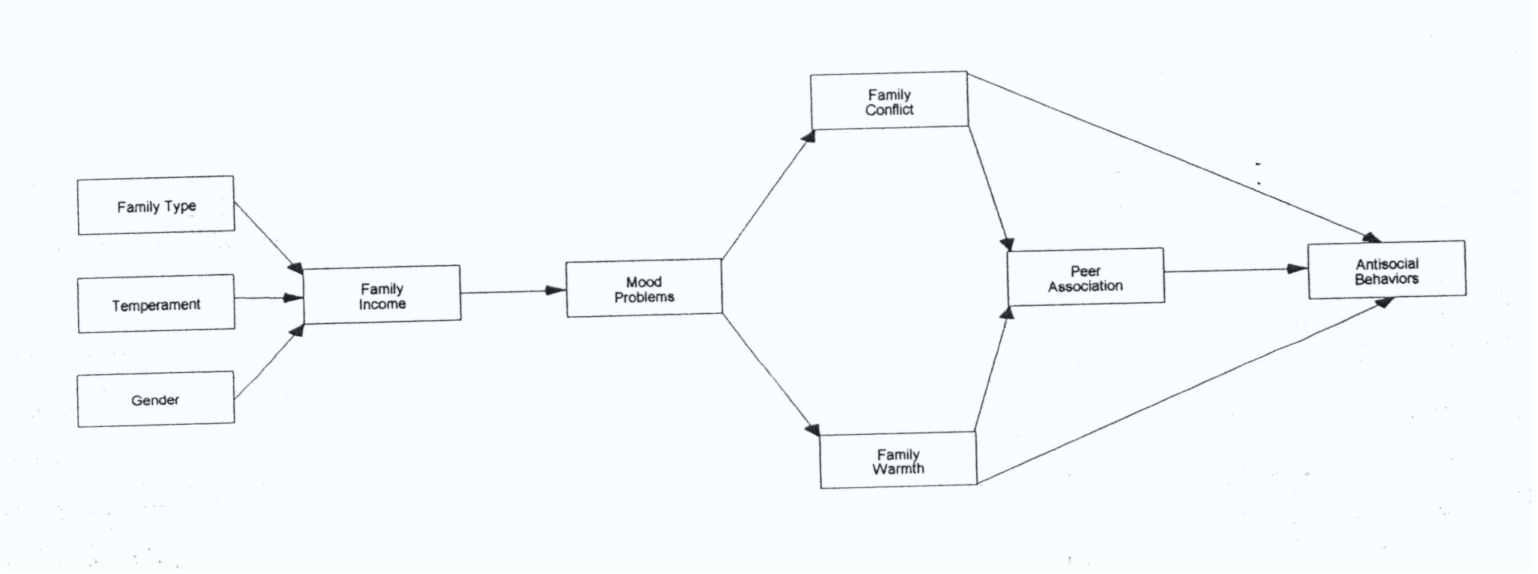

Figure 3.1. *Hypothesized path-analytic Model B: Influence of family income, maternal mood problems, family conflict, warmth, association with deviant peers on adolescents' antisocial behaviors. Temperament, gender, and family type differences.*

CHAPTER 3

Method

In this section, I describe the data set and sample used for the present study. Economic distress is conceptualized as an exogenous variable. Maternal mood problems, family conflict, family warmth, and association with deviant peers are mediating endogenous variables, with temperament, gender, and family type being moderating variables. Adolescents' antisocial behavior is the endogenous variable. In order to deal with nonresponses on some items used in creating the indices, I used SPSS' compute variable equal to sum function [compute variable 1 = SUM (variable A to variable Z)]. With this option, a scale is assigned a valid value if at least one score value is valid; it is system-missing only when all score values are missing (SPSS Inc., 1999).

Sample

The study employed data from the Woodlawn Mental Health Longitudinal Community Epidemiological Project, 1966-1976. The sample consisted of African-American adolescents and their mothers residing in Woodlawn, a community on the south side of Chicago. For the present study, family types that did not include mothers (father-alone, grandmother, aunt, stepfather, siblings, female non-relatives, and others) were excluded. Finally, mother-other adult family type was recoded to include mother-grandmother, mother-aunt, and mother-older sibling families. The recoding resulted in having four family types (intact, 253 respondents; mother-alone, 348 respondents; mother-stepfather, 67 participants; mother-other adult, 172 respondents), and a total sample size of 840 participants (parent-child pairs). The mean age of the mothers was 40.14 years with a standard deviation of 6.21 years. Of the adolescents, 423 were female and 417 were male. The mean age of the adolescents was 14.73 years with a standard deviation of 0.54 years.

Data Collection

Empirical articles (Ensminger, Brown, & Kellam, 1982; Fleming, Kellam, & Brown, 1982; Kellam et al., 1977; Kellam, Ensminger, Simon, 1980) can provide the reader with detailed descriptions of data collection procedures employed in the Woodlawn Project. Data were collected at three time periods. Time 1 data were collected from the children's mothers and teachers when the children were in the first grade. Time 2 data collection took place when the children were in the third grade, and information was provided by the children themselves. Time 3 data, provided by mothers and adolescents, were collected when the children were between 16 and 17 years old using measures of social adaptational status and psychological well-being. For the present study, only the third wave of collected data were used. The rationale for using only the third wave of data was that information about the variables of interest in this study were collected only at Time 3.

Measures

Economic distress. Total family income was used as a proxy measure for economic distress. It included income from all sources such as wages, business, social security, government pension, old age assistance, alimony and child support, aid to families with dependent children, cash contributions, general welfare assistance, and other sources of income. The mean income for the sample in 1976 dollars was $8,957.01 with a standard deviation of $5,722.05.

Index of maternal mood problems. A summative index using mothers' report of mood problems was created. Mothers responded to seven items indicating the degree to which they had felt (a) nervous, (b) tense, (c) anxious, (d) sad, (e) hopeless, (f) ashamed, and (g) blamed last few weeks. The responses were set on a 6-point Likert-type scale (from 1 = not at all to 6 = very, very

much). The mean response was 14.28, with a standard deviation of 5.52. The index indicated an alpha reliability of .75 for the present sample. See appendix 3.1 for sample items used.

Index of family conflict. Family conflict was measured using a summative index of mothers' report of family conflict. Mothers responded to five items about whether the child and adults in the home (a) had arguments, (b) shouted and let off steam, (c) let out hurt feelings, (d) threw things in anger, and (e) slammed doors in anger. Responses were set on a 6-point Likert-type scale ranging from 1 = less often to 6 = several times a week. The mean response was 13.39, with a standard deviation of 6.09. Alpha reliability for the index was .74. See appendix 3.2 for sample items used.

Index of family warmth. A summative index was created with an alpha reliability of .64 using mothers' report of family warmth. Mothers responded to five items about whether the child and adults in home (a) acted warm and loving, (b) hugged and kissed, (c) brought unexpected gifts, (d) understood each other's moods, and (d) said nice things to each other. The responses to the questions were set on a 6-point Likert-type scale ranging from 1 = less often to 6 = several times a week. The mean response was 20.9 with a standard deviation of 5.17. See appendix 3.3 for sample items used.

Index of association with deviant peers. A proxy index was created using mothers' responses to four items about the number of the child's close friends who used cigarettes, drank beer or wine, drank liquor, or used marijuana on a 5-point Likert-type scale ranging from 1 = none to 5 = all. The scale had a mean rating of 3.21 with a standard deviation of 1.00 and an alpha reliability of .91. Sample items used are presented in appendix 3.4.

Family structure. Family structure was categorized as (a) intact, (b) mother-alone, (c) mother-stepfather, or (d) mother-other adult families. Intact families represented families in which both biological parents were still living together with their biological children. Mother-alone families represented mothers who were living alone as either never married or divorced single mothers. Mother-stepfather families represented families in which either the mother, stepfather, or both had children. Mother-other adult families included families in which other relatives or siblings of the mother were present.

Index of adolescent temperament. A proxy index was created using mothers' responses to two items on a 6-point Likert-type scale ranging from 1 = not at all to 6 = very, very, much. One item assessed hyperactivity and restlessness, whereas the second item assessed noncompliant aggressive and destructive behaviors. The scale had an alpha reliability of .56, with a mean rating of 3.71 and a standard deviation of 2.27. The index was dichotomized so that any adolescent reported to present either hyperactivity or noncompliance was categorized as having a difficult temperament, whereas anyone who did not present any problem was categorized as having an easy temperament. See appendix 3.5 for sample items used.

Index of adolescent antisocial behaviors. Mothers responded to 21 items related to the frequency of child behavior problems such as truancy, school problems, stealing, substance use, and aggressive behaviors. Sample questions were "child (a) stayed out later than parents said, (b) suspended or expelled from school, (c) took something from store, did not pay, (d) drank beer/liquor without parent's permission, and (e) participated in gang fight." Mothers had to answer "yes" or "no" whether the target child exhibited the behavior in question. If the mother answered "no," the response was coded as 2; if the mother's response was "yes," she was asked about the

frequency of occurrence of the behavior in question. The responses, set on a 5-point Likert-type scale (2 = no, 3 = 5 or more times, 4 = 3 or 4 times, 5 = 2 times, 6 = 1 time) were reverse recoded, (2 = 1, 6 = 2, 5 = 3, 4 = 4, 3 = 5). Thus, the recoded scale was (1 = no, 2 = 1 time, 3 = 2 times, 4 = 3 or 4 times, 5 = 5 or more times). Higher values indicated higher frequency of occurrence. The summed responses had a mean of 25.84 with a standard deviation of 6.47. The summed index had an alpha reliability of .79. See appendix 3.6 for sample items used.

Data Analyses Strategy

The model hypothesized in Figure 3.1 was tested with multi-group path analysis based on maximum likelihood estimation procedures using the AMOS 4.0 statistical program (Arbuckle & Wothke, 1999). Path analysis facilitates the simultaneous consideration of the relationship among all the variables in the model (Loehlin, 1998), and allows for the measurement of indirect effects (Asher, 1983). In order to know whether adolescent temperament, gender, or family type moderate the relationships among the variables specified in the model, the analyses proceeded in an a priori five-step multi-group path analytic technique that involved successively restricting certain path weights from one step to the next by constraining them to be equal across groups (Arbuckle & Wothke, 1999; Kline, 1998).

For these analyses, the covariance matrices for temperament, gender, and family type were simultaneously fitted to the model in Figure 3.1. The covariance matrices were used in the multi-group analyses instead of the correlation matrix because the latter discards information about the variability of each group (Raykov, Tomer, & Nesselroade, 1991). Arbuckle and Wothke (1999) argued that a simultaneous analyses of groups has two advantages over doing separate analyses for different groups (a) it provides a test of the significance of any differences found between groups, and (b) if it can be concluded that there are no differences among groups,

or if group differences concern only a few model parameters, multi group analyses provides more efficient parameter estimates than multiple single group models.

Five hierarchically nested multi-group models were estimated using cross-group equality constraints to determine whether: (a) temperament, gender, or family type were equivalent in the general pattern of structural relationships among the variables [Step 1: Configural Invariance]; (b) temperament, gender, or family type moderate the effects of family income on maternal mood problems [Step 2: Income Invariance]; (c) temperament, gender, or family type moderate the effects of maternal mood problems on family conflict and warmth [Step 3: Mood Problems Invariance]; (d) temperament, gender, or family type moderate the effects of family conflict and warmth on adolescents' association with peers [Step 4: Family Processes Invariance]; and (e) temperament, gender, or family type moderate the effects of family conflict, warmth, and association with peers on adolescents' antisocial behaviors [Step 5: Peer Association Invariance].

CHAPTER 4

Results

In this section, I present the various indices of fit used to assess goodness-of-fit of the models. I also present results of the analyses that examined the structural invariance and moderating effects of temperament, gender, or family type using the indices of fit suggested here.

Indices of Fit

The indices of fit I chose to use to evaluate goodness-of-fit are (a) chi-square (χ^2), (b) the normed fit index (NFI), (c) the root mean square error of approximation (RMSEA), and (d) the test for close fit (P-CLOSE). Jaccard and Wan (1996) recommended the use of at least three goodness-of-fit tests, whereas Kline (1998) suggested at least four tests.

Hypothesis testing using the χ^2 is affected by the sample size being analyzed. As sample size increases, the probability that a given model will be rejected increases (Kline, 1998; Long, 1983). A significant chi-square is not a reason by itself to modify the model if other fit indices (e.g., NFI, RMSEA) provide a good fit. To reduce the sensitivity of the χ^2 statistic to sample size, a ratio of χ^2/df of about 3 is suggested (Kline, 1998).

The Bentler-Bonett Normed Fit Index (NFI) varies from 0 to 1, with 1 being a perfect fit. By convention, NFI values below .90 indicate a need to respecify the model (Bentler & Bonett, 1980). The RMSEA is relatively insensitive to sample size, and a statistical test of close fit (P-CLOSE) can be obtained for it. With the RMSEA, $p < .05$ indicates a close fit of the model per Browne and Cudeck (1993) and Loehlin (1998); however, Hu and Bentler (1999) suggested a RMSEA $\leq .06$ as the cutoff for a good model fit. For the test of close fit (P-CLOSE), the test is rejected if $p < .05$ (Loehlin, 1998).

Examination of the Models for Family Type

Kline (1998) and Loehlin (1998) argued that, when a hierarchically-nested multi-group comparisons are made, it is appropriate to report unstandardized path coefficients because using standardized coefficients can mask any differences that may exist across groups. The results of the multi-group path analyses for structural invariance and differential effects family type are presented respectively.

Assessing structural invariance for family types. Model 1 [Configural Invariance] was used to examine whether the structural relationships among the variables in the model were equivalent across family types. This required invariance of the structural patterning of the parameters rather than the numerical values (McArdle & Cattell, 1994; McArdle & Nesselroade, 1994). If the goodness-of-fit indices show the model to be inadequate, that suggests that the need for alternative model specification for each family type. As reported in Table 3.1, the goodness-of-fit indices [χ^2(28 df) = 39.64, p = .07; χ^2/df = 1.42; NFI = .99; RMSEA = .02; P-CLOSE = 1] show that the model was adequate, indicating that irrespective of family type, the nature of the hypothesized associations among the variables are equivalent.

The hypothesized associations among the variables are plotted in Figure 3.2. Here the emphases are on the general pattern of associations among the variables and not on the path weights. For Figure 3.2, the path weights are reported for intact, mother-alone, mother-stepfather, and mother-other adult families respectively.

Assessing the moderating role of family type. In path analyses, in order to assess the moderating effects of *Variable C* on the relationships between *Variables A* and *B*, one has to compare a chosen baseline model against a model of interest. In that analysis, the χ^2 and degrees

Table 3.1. *Comparative Goodness-of-fit for the Models of Family Type Effects*

	Goodness-of-Fit				Test of Close-Fit		Comparative Goodness-of-Fit		
Model Label	df	χ^2	NFI	*p*	RMSEA	p-close	Δdf	$\Delta\chi^2$	*p*(d)
Step 1: Configural Invariance	28	39.64	.99	.07	.02	1			
Step 2: Income Invariance	31	40.40	.99	.12	.02	1			
Step 2 versus Step 1							*3*	*.77*	*.86*
Step 3: Mood Problems Invariance	37	47.13	.99	.12	.02	1			
Step 3 versus Step 2							*6*	*6.72*	*.35*
Step 4: Family Processes Invariance	43	50.74	.99	.07	.02	1			
Step 4 versus Step 2							*12*	*10.34*	*.59*
Step 5: Peer Association Invariance	52	72.51	.99	.03	.02	1			
Step 5 versus Step 2							*21*	*32.11*	*.06*

Note: df = degrees of freedom; NFI = normed fit index; *p* = probability of exact fit to the data; RMSEA = root mean square error of approximation; p-close = probability of close fit to the data; Δdf = difference in df; $\Delta\chi^2$ = difference in chi-square tests; *p*(d) = probability of difference tests.

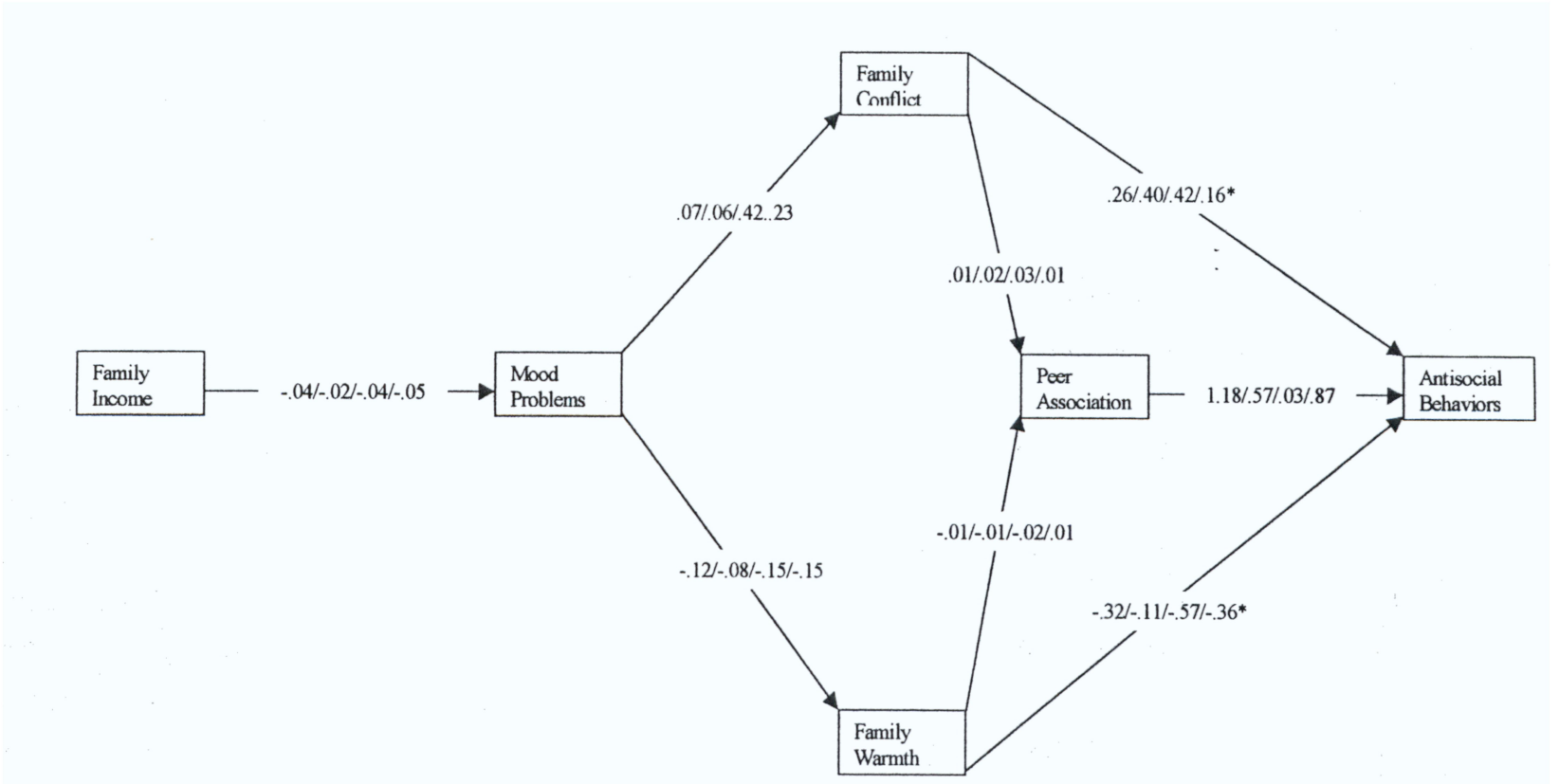

Figure 3.2. *Path-Analytic Model for Family Type Effects.*

Note: Path weights are reported for intact, mother-alone, mother-stepfather, and mother-other adult families respectively. The asterisks attached to certain path weights, indicate paths that are moderated by family type.

of freedom of the baseline model are subtracted from those of the model of interest, and a *p*-value is calculated. A significant difference between models indicates that *Variable C* moderates the associations between *Variables A* and *B* (Kline, 1998; Long, 1983).

Step 2 [Income Invariance] was compared against Step 1 [Configural Invariance] to determine whether family type moderates the effects of family income on maternal mood problems. In regard to Step 2, cross-group equality constraints were placed on the paths for effects of family income on maternal mood problems. The imposition of constraints allowed an assessment of whether a fixed unit change in family income corresponds to the same change in maternal mood problems independent of group categorization. If that is confirmed, the same regression weights can be used for all groups (Arbuckle & Wothke, 1999). As reported in Table 3.1, the comparison of Step 2 against Step 1 revealed no significant family type differences ($\Delta df = 3$; $\Delta\chi^2 = .77$; n.s.). This indicates that family type did not moderate the effects of family income on maternal mood problems in this sample.

To assess whether family type moderates the effects of maternal mood problems on family conflict and warmth, Step 2 [Income Invariance] was compared with Step 3 [Mood Problems Invariance]. For Step 3, cross-group equality constraints were placed on the paths between maternal mood problems and family conflict and warmth; these were in addition to those placed in Step 2. The result presented in Table 3.1 shows that there was no significant difference between models ($\Delta df = 6$; $\Delta\chi^2 = 6.72$; n.s.), which means that family type did not moderate the effects of maternal mood problems on family conflict and warmth in this sample

Is family type differentially related to the effects of family conflict and warmth on association with deviant peers? Step 2 [Income Invariance] was compared against Step 4 [Family Processes Invariance] to examine that question. In regard to Step 4, additional cross-group equality constraints were added to Step 3 by imposing constraints on the paths for the effects of

family conflict and warmth on association with deviant peers. The results presented in Table 3.1 did not reveal any significant difference between models ($\triangle df = 12$; $\triangle \chi^2 = 10.34$; n.s.), indicating that family type did not moderate the effects of family conflict and warmth on association with deviant peers in this sample.

Does family type moderate the effects of family conflict, warmth, and association with peers on adolescents' antisocial behaviors? To determine these associations, Step 2 [Income Invariance] was compared against Step 5 [Peer Association Invariance]. For Step 5, cross-group equality constraints were imposed on the effects of family conflict, warmth, and association with peers on adolescents' antisocial behaviors; these were in addition to those imposed in Step 4. As reported in Table 3.1 there was as a marginal difference between the models ($\triangle df = 21$; $\triangle \chi^2 = 32.11$; $p = .06$), meaning that the effects of family conflict, warmth, and association with deviant peers on antisocial behaviors differed by family type.

To identify which path weights were significantly different from each other among family types, the critical ratio for differences between parameters, that was calculated by AMOS, was used. This procedure is analogous to performing a post-hoc analysis in ANOVA (Arbuckle & Wothke, 1999). For the sake of simplicity, the path weights of Step 1 [Configural Invariance] are summarized in Figure 3.2 above and Table 3.2 . For Figure 3.2, the asterisks attached to some of the coefficients reported mean that those path coefficients are moderated by family type.

Plots for the Moderating Effects of Family Type

The following plots represent pictorial depictions of the moderating effects of family structure on the associations between family conflict and family warmth on adolescents' antisocial behaviors.

Table 3.2. *Step 1 - Configural Invariance for Family Type Effects*

	Intact Family			Mother-Alone			Mother-Stepfather			Mother-Other Adult		
Model Parameters	Est.	S. E.	*t*	Est.	S. E.	*t*	Est.	S. E.	*t*	Est.	S. E.	*t*
Income → Mood Problems.	-.04	.02	-2.82**	-.02	.02	-1.18	-.04	.03	-1.13	-.05	.04	-1.29
Mood Problems → Conflict	.07	.07	.93	.18	.06	3.08**	.42	.14	3.01**	.23	.08	2.78**
Mood Problems → Warmth	-.12	.07	-1.83	-.08	.05	-.170	-.15	.13	-1.18	-.15	.07	-2.25**
Conflict → Peer Association	.01	.01	.98	.02	.01	1.72	.03	.02	2.06*	.01	.01	.57
Warmth → Peer Association	-.01	.01	-1.19	-.01	.01	-1.12	-.02	.02	-1.12	.01	.01	.35
Conflict → Antisocial Behaviors	.26	.06	4.45**	.40	.05	7.75**	.42	.14	2.94**	.16	.07	2.44*
Warmth → Antisocial Behaviors	-.32	.06	-5.16**	-.11	.06	-1.75	-.57	.16	-3.51**	-.36	.09	-4.20**
Peer Association → Antisocial Behaviors	1.18	.32	3.66**	.57	.32	1.77	.03	1.04	.024	.87*	.43	2.03*

Model: $\chi^2(28\ df) = 39.64$, $p = .07$; $\chi^2/df = 1.42$; NFI = .99; RMSEA = .02; P-CLOSE = 1

* = $p < .05$; ** = $p < .01$

Effects of family warmth on antisocial behaviors. The results plotted in Figure 3.3 revealed that an increase in family warmth was related to (a) a greater reduction in antisocial behaviors (t = 2.33) among adolescents in intact families (b = -.32) relative to those in mother-alone families (b = -.11), (b) a significant decrease in antisocial behaviors (t = -2.64) for adolescents in mother-stepfather families (b = -.57) relative to those in mother-alone families (b = -.11), and (c) a significant decrease in antisocial behaviors (t = -2.34) for adolescents in mother-other adult families (b = -.36) compared with those in mother alone families (b = -.11).

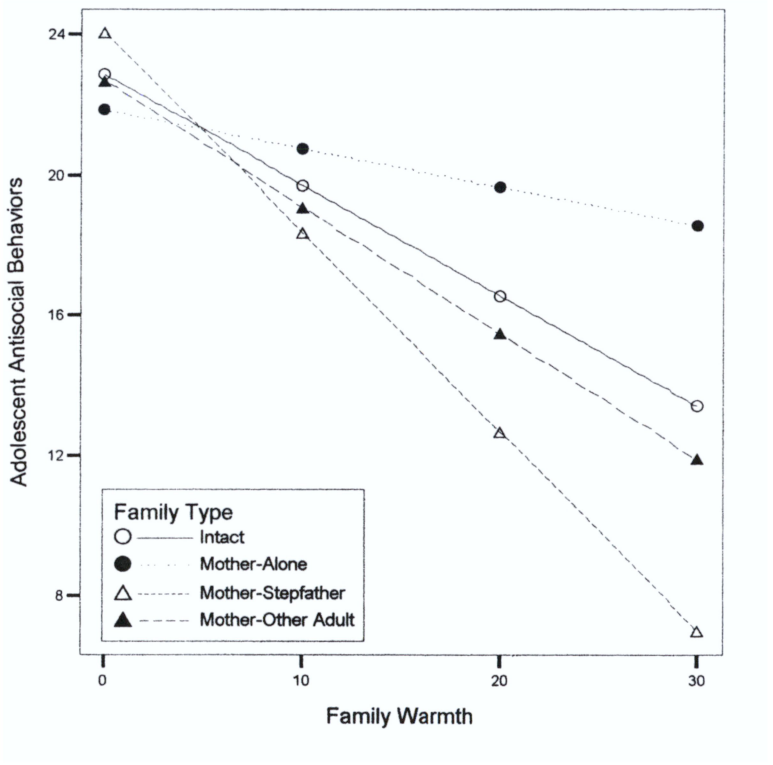

Figure 3.3. *The differential effects of family type on the associations between family warmth and adolescents' antisocial behaviors.*

Effects of family conflict on antisocial behaviors. Figure 3.4 reveals the results of the differential effects of family type for the effects of family conflict on antisocial behaviors. An increase in family conflict resulted in (a) a marginal increase in antisocial behaviors (t = 1.79) among adolescents in mother-alone families (b = .40) compared with those in intact families (b = .26); (b) a significant increase in antisocial behaviors (t = -2.85) among adolescents from mother-alone families (b = .40) compared with those from mother-other adult families (b = .16); and (c) a marginal increase in antisocial behaviors (t = -1.64) among adolescents in mother-stepfather families (b = .42) relative to those in mother-other adult families (b = .16).

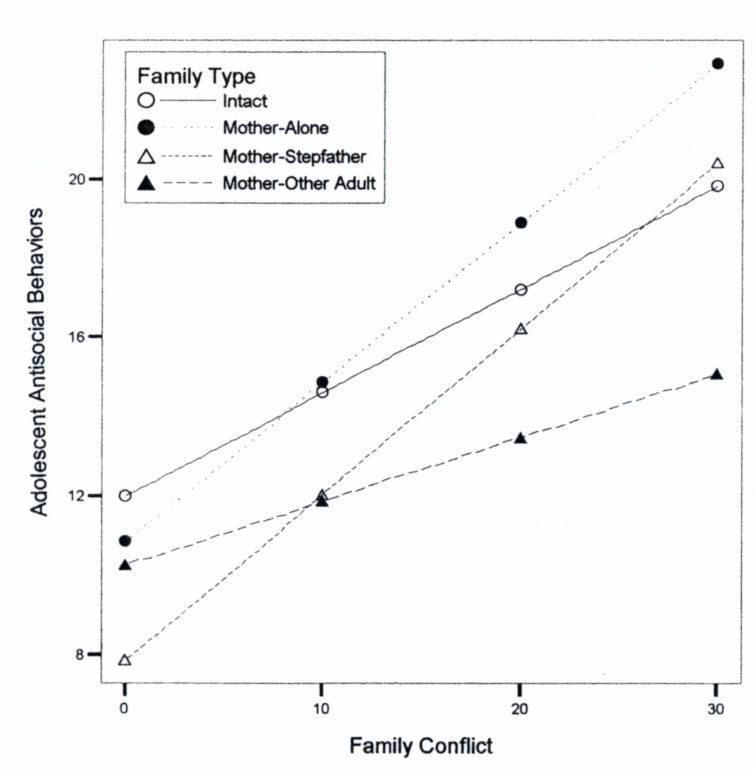

Figure 3.4. *The differential effects of family type on the associations between family conflict and adolescents' antisocial behaviors.*

Examining Models for Temperament Effects

The findings of the multi-group path analyses for the structural invariance and moderating effects of temperament are summarized below.

Assessing structural invariance for temperament. Step 1 [Configural Invariance] was used to examine whether the structural relationships among the variables in the model were equivalent across family types. As reported in Table 3.3 the goodness-of-fit indices [χ^2(14 df) = 25.85, p = .03; χ^2/df = 1.85; NFI = .99; RMSEA = .03; P-CLOSE = .94] show that the model is adequate, indicating that, irrespective of temperament, the nature of the hypothesized associations among the variables is equivalent.

The hypothesized associations among the variables are plotted in Figure 3.5. Here the emphases are on the general pattern of associations among the variables and not on the path weights. For Figure 3.5, the path weights are reported for easy and difficult temperaments respectively.

Assessing the moderating role of temperament. Step 2 [Income Invariance] was compared against Step 1 [Configural Invariance] to determine whether temperament moderates the effects of family income on maternal mood problems. In regard to Step 2, cross-group equality constraints were imposed on the paths for family income effects on maternal mood problems. As reported in Table 3.3, the comparison revealed no significant differences (Δdf = 1; $\Delta\chi^2$ = .05; n.s.), indicating that temperament did not moderate the effects of family income on maternal mood problems.

To assess whether temperament moderates the effects of maternal mood problems on family conflict and warmth, Step 2 [Income Invariance] was compared against Step 3 [Mood

Table 3.3. *Comparative Goodness-of-fit of Models for Temperament Effects.*

	Goodness-of-Fit				Test of Close-Fit		Comparative Goodness-of-Fit		
Model Label	df	χ^2	NFI	*p*	RMSEA	p-close	Δdf	$\Delta\chi^2$	*p*(d)
Step 1: Configural Invariance	14	25.85	.99	.03	.03	.94			
Step 2: Income Invariance	15	25.89	.99	.04	.03	.97			
Step 2 versus Step 1							*1*	*.05*	*.83*
Step 3: Mood Problems Invariance	17	29.02	.99	.03	.03	.98			
Step 3 versus Step 2							*2*	*3.12*	*.21*
Step 4: Family Processes Invariance	19	29.03	.99	.07	.03	.99			
Step 4 versus Step 2							*4*	*3.13*	*.54*
Step 5: Peer Association Invariance	22	58.83	.99	.001	.05	.72			
Step 5 versus Step 2							*7*	*32.93*	*<.001*

Note: df = degrees of freedom; NFI = normed fit index; *p* = probability of exact fit to the data; RMSEA = root mean square error of approximation; p-close = probability of close fit to the data; Δdf = difference in df; $\Delta\chi^2$ = difference in chi-square tests; *p*(d) = probability of difference tests.

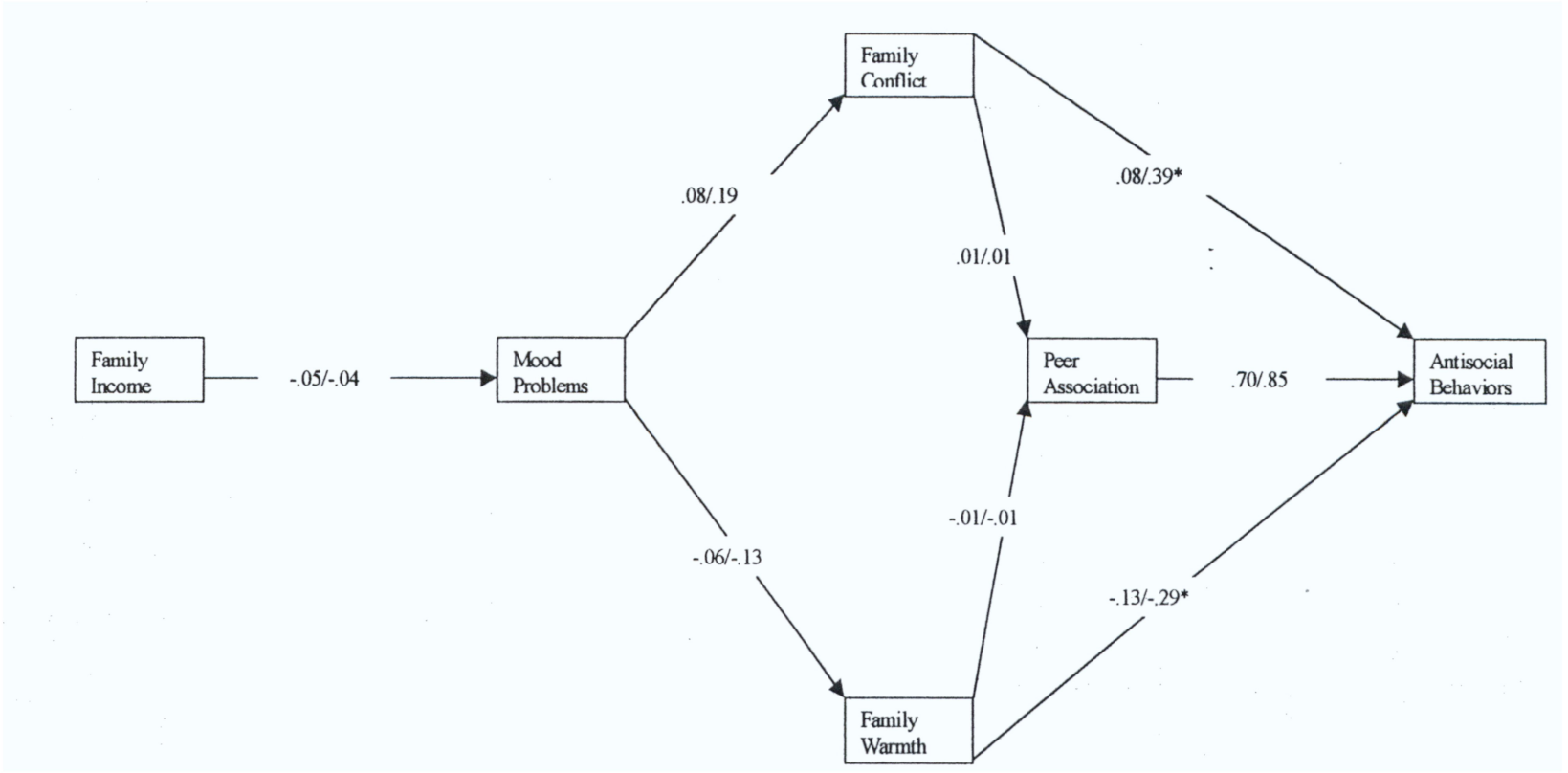

Figure 3.5. *Path-Analytic Model for Temperament Effects.*

Note: Path weights are reported for easy and difficult temperaments respectively. The asterisks attached to certain path weights, indicate paths that are moderated by temperament.

Problems Invariance]. For Step 3, cross-group equality constraints were imposed on the paths between maternal mood problems and family conflict and warmth; these were in addition to those imposed in Step 2. The results presented in Table 3.3 show that there was no significant difference between the models ($\triangle df = 2$; $\triangle \chi^2 = 3.12$; n.s.), which means that temperament did not moderate the effects of maternal mood problems on family conflict and warmth.

Is temperament differentially related to the effects of family conflict and warmth on association with deviant peers? In regard to that question, Step 2 [Income Invariance] was compared against Step 4 [Family Processes Invariance]. For Step 4, additional cross-group equality constraints were added to Step 3 by imposing constraints on the paths for the effects of family conflict and warmth on association with deviant peers. The results presented in Table 3.3 show that there was no significant difference between models ($\triangle df = 4$; $\triangle \chi^2 = 3.13$; n.s.), which means that temperament did not moderate the effects of family conflict and warmth on association with peers.

Does temperament moderate the effects of family conflict, warmth, and association with peers on antisocial behaviors? To examine those effects, Step 2 [Income Invariance] was compared against Step 5 [Peer Association Invariance]. For Step 5, cross-group equality constraints were imposed on the effects of family conflict, warmth, and association with peers on adolescents' antisocial; these constraints were in addition to those imposed in Step 4. As reported in Table 3.3 there was a significant difference between the models ($\triangle df = 7$; $\triangle \chi^2 = 32.93$; $p < .001$), indicating that temperament moderates the effects of family processes and association with peers on antisocial behaviors.

For the sake of simplicity, the path weights of Model 1 [Configural Invariance] are summarized in Figure 3.5 and Table 3.4. For Figure 3.5, the asterisks attached to some of the coefficients reported mean that those path coefficients are moderated by temperament.

Table 3.4. *Model 1 - Configural Invariance For Temperament Effects.*

				Difficult Temperament		
Model Parameters	Est.	S. E.	*t*	Est.	S. E.	*t*
Income → Mood Problems.	-.05	.01	-3.28**	-.04	.02	-2.37*
Mood Problems → Conflict	.08	.06	1.43	.19	.05	3.83**
Mood Problems → Warmth	-.06	.05	-1.23	-.13	.04	-2.81**
Conflict → Peer Association	.01	.01	1.43	.01	.01	1.65
Warmth → Peer Association	-.01	.01	.78	-.01	.01	-1.15
Conflict → Antisocial Behaviors	.08	.03	3.17**	.39	.05	7.09**
Warmth → Antisocial Behaviors	-.13	.03	-4.14**	-.29	.06	-4.69**
Peer Association → Antisocial Behaviors	.70	.15	4.71**	.85	.34	2.48**

Model: $\chi^2(14df) = 25.850$, $p = .027$; $\chi^2/df = 1.846$; NFI = .997; RMSEA = .032; P-CLOSE = .942

* = $p < .05$; ** = $p < .01$

Plots for the Moderating Effects of Temperament

The following plots represent representation of the moderating effects of temperament on the associations between family conflict and warmth on adolescents' social competence.

Effects of family warmth on antisocial behaviors. Figure 3.6 shows that for temperament effects, an increase in family warmth was related to a significant reduction in antisocial behaviors (t = -2.21) among adolescents classified as having a difficult temperament (b = -.29) relative to those classified as having an easy temperament. (b = -.13).

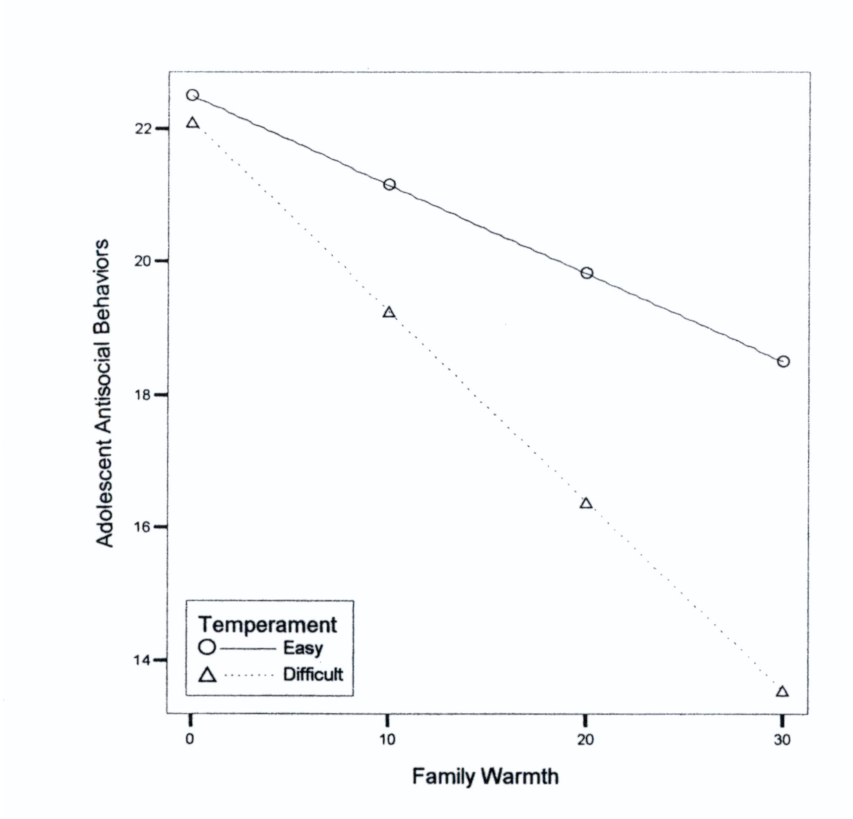

Figure 3.6. *The moderating effects of temperament on the associations between family warmth and adolescents' antisocial behaviors.*

Effects of family conflict on antisocial behaviors: temperament. Figure 3.7 shows that, for temperament effects, an increase in family conflict was related to a significant increase in antisocial behaviors (t = 4.977) among adolescents classified as having a difficult temperament (b = .39) relative to those classified as having an easy temperament (b = .08).

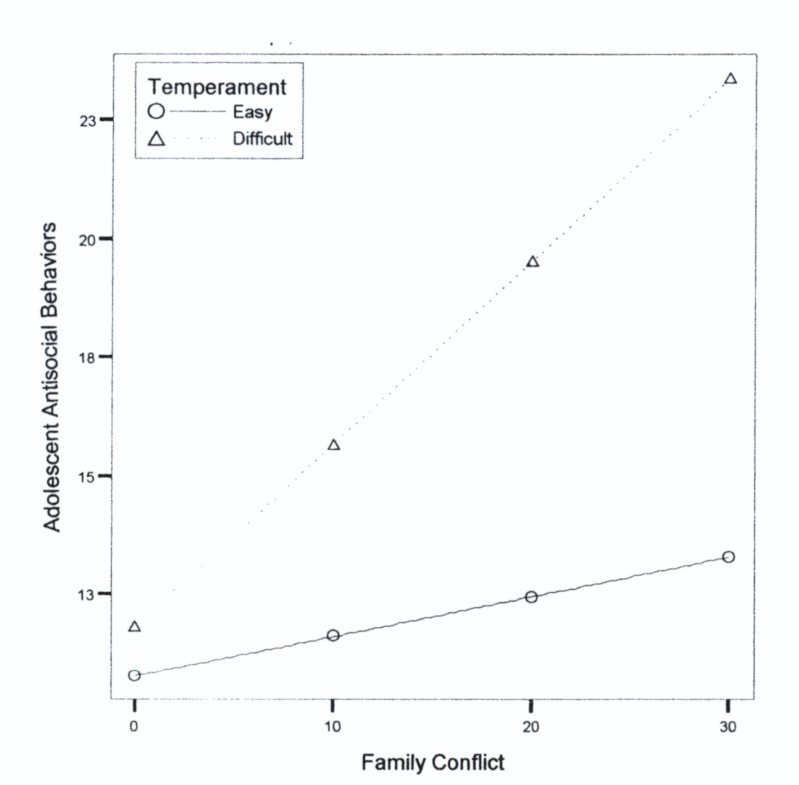

Figure 3.7. *The differential effects of temperament on the associations between family conflict and adolescents' antisocial behaviors.*

Examination of the Models for Gender Effects

The results of the analyses for gender effects are presented in Tables 3.5 and 3.6 and Figure 3.8

Assessing structural invariance for gender. Step 1 [Configural Invariance] was used to examine whether the structural relationships among the variables in the model were equivalent across family types. As reported in Table 3.5, the goodness-of-fit indices [χ^2(14 df) = 25.04, p = .03; χ^2/df = 1.79; NFI = .99; RMSEA = .03; P-CLOSE = .95] show that the model is adequate. This finding indicates that, irrespective of gender, the nature of the hypothesized associations among the variables is equivalent.

The hypothesized associations among the variables are plotted in Figure 3.8. Here the emphases are on the general pattern of associations among the variables and not on the path weights. For Figure 3.8, the path weights are reported for males and females respectively.

Assessing the moderating effects of gender. To determine whether gender moderates the effects of family income on maternal mood problems, Step 2 [Income Invariance] was compared against Step 1 [Configural Invariance]. For Step 2, cross-group equality constraints were imposed on the paths for family income effects on maternal mood problems. As reported in Table 3.5, the comparison of the models did not reveal a significant difference (Δdf = 1; $\Delta\chi^2$ = .0; n.s.), indicating that gender did not moderate the effects of family income on maternal mood problems.

Step 2 [Income Invariance] was compared against Step 3 [Mood Problems Invariance] to assess whether gender moderates the effects of maternal mood problems on family conflict and warmth,. For Step 3, cross-group equality constraints were imposed on the paths between maternal mood problems and family conflict and warmth; these were in addition to those imposed

Table 3.5. *Comparative Goodness-of-fit for the Models of Gender Effects.*

	Goodness-of-Fit				Test of Close-Fit		Comparative Goodness-of-Fit		
Model Label	df	χ^2	NFI	*p*	RMSEA	p-close	Δdf	$\Delta\chi^2$	*p*(d)
Step 1: Configural Invariance	14	25.04	.99	.03	.03	.95			
Step 2: Income Invariance	15	25.04	.99	.05	.03	.97			
Step 2 versus Step 1							*1*	*0*	*1*
Step 3: Mood Problems Invariance	17	29.21	.99	.03	.03	.98			
Step 3 versus Step 2							*2*	*4.17*	*.12*
Step 4: Family Processes Invariance	19	30.65	.99	.04	.03	.99			
Step 4 versus Step 2							*4*	*5.62*	*.23*
Step 5: Peer Association Invariance	22	34.28	.99	.05	.03	.99			
Step 5 versus Step 2							*7*	*9.24*	*.24*

Note: df = degrees of freedom; NFI = normed fit index; *p* = probability of exact fit to the data; RMSEA = root mean square error of approximation; p-close = probability of close fit to the data; Δdf = difference in df; $\Delta\chi^2$ = difference in chi-square tests; *p*(d) = probability of difference tests.

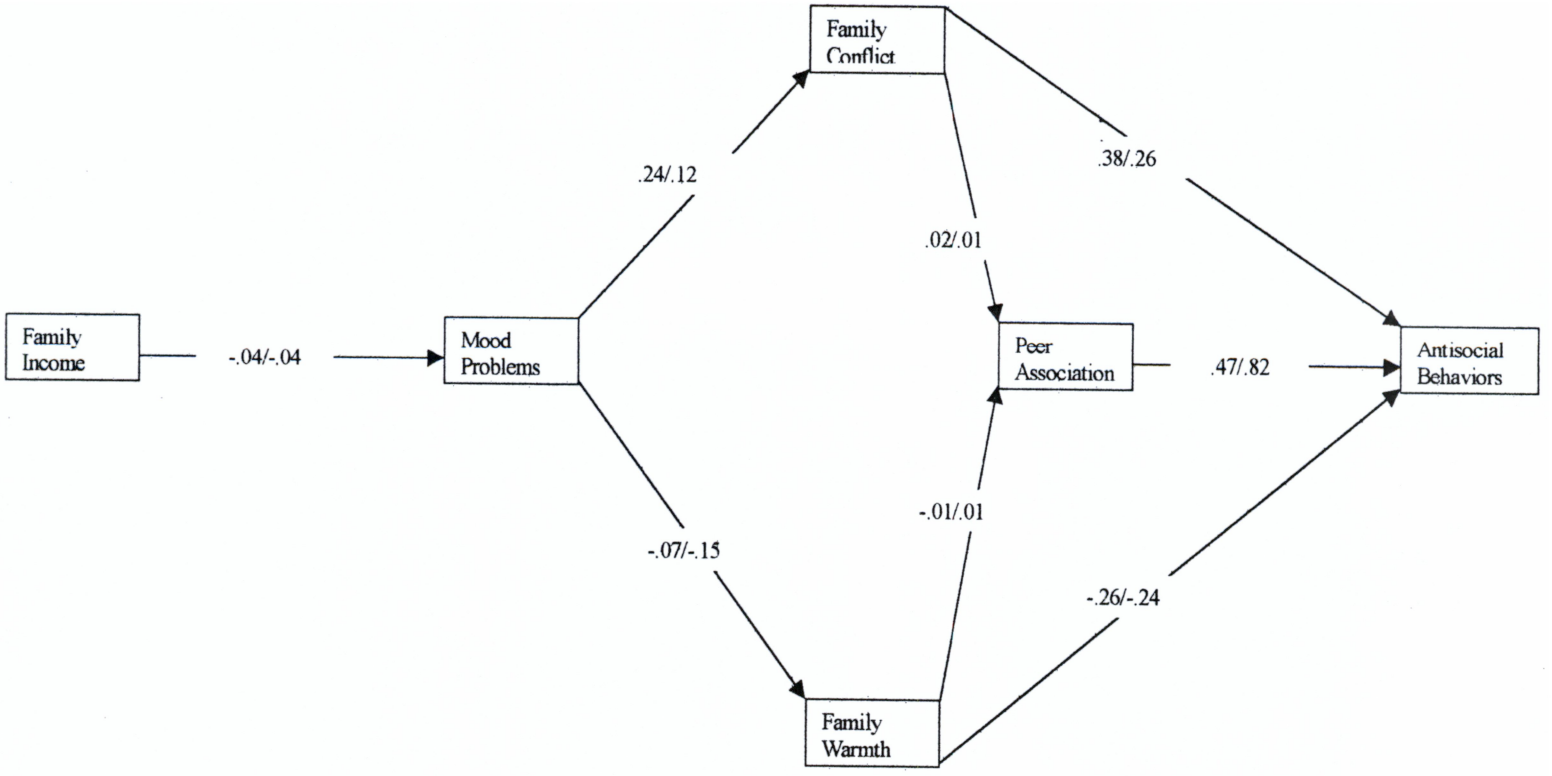

Figure 3.8: *Path-Analytic Model for Gender Effects.*

Note: Path weights are reported for males and females respectively.

in Step 2. The results presented in Table 3.5 show that there was no significant difference between models ($\Delta df = 2$; $\Delta\chi^2 = 4.17$; n.s.)., which means that gender did not moderate the effects of maternal mood problems on family conflict and warmth.

Is gender differentially related to the effects of family conflict and warmth on association with deviant peers? To address that question, Step 2 [Income Invariance] was compared against Step 4 [Family Processes Invariance]. For Step 4, additional cross-group equality constraints were added to Step 3 by imposing constraints on the paths for the effects of family conflict and warmth on association with deviant peers. As reported in Table 3.5, there was found no significant difference between models ($\Delta df = 4$; $\Delta\chi^2 = 5.62$; n.s.), indicating that gender did not moderate the effects of family processes on association with deviant peers.

Does gender moderate the effects of family conflict, warmth, and association with peers on antisocial behaviors? To determine these effects, Step 2 [Income Invariance] was compared against Step 5 [Peer Association Invariance]. For Step 5, cross-group equality constraints were imposed on the effects of family conflict, warmth, and association with peers on adolescents' antisocial. These constraints were in addition to those imposed in Step 4. As reported in Table 3.5 there was no significant difference found between the models ($\Delta df = 7$; $\Delta\chi^2 = 9.24$; n.s.), indicating that gender did not moderate the effects of family conflict, warmth, and association with peers on adolescents' antisocial behaviors.

For the sake of simplicity, the path weights of Step 1 [Configural Invariance] are summarized in Figure 3.8 and Table 3.6 . For Figure 3.8, the order in which the path weights are reported is for males and females respectively.

Table 3.6. *Step 1 - Configural Invariance for Gender Effects*

	Males			Females		
Model Parameters	Est.	S. E.	*t*	Est.	S. E.	*t*
Income → Mood Problems.	-.04	.02	-2.49**	-.04	.01	-3.18**
Mood Problems → Conflict	.24	.05	4.85**	.12	.06	2.14*
Mood Problems → Warmth	-.07	.05	-1.54	-.15	.05	-3.34
Conflict → Peer Association	.02	.01	2.76**	.01	.01	1.05
Warmth → Peer Association	-.01	.01	-.82	-.003	.01	-.29
Conflict → Antisocial Behaviors	.38	.06	6.93**	.26	.04	6.77**
Warmth → Antisocial Behaviors	-.26	.06	-4.16**	-.24	.05	-5.01**
Peer Association → Antisocial Behaviors	.47	.36	1.31	.82	.24	3.44**

Model: $\chi^2(14df) = 25.037$, $p = .034$; $\chi^2/df = 1.788$; NFI = .997; RMSEA = .031; P-CLOSE = .952

* = $p < .05$; ** = $p < .01$

CHAPTER 5

Discussions and Conclusions

Using bioecological theory of human development (Bronfenbrenner, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998) and the conceptualizations of Baldwin et al. (1990), Richters and Weintraub (1990), Rutter (1990), and Garmezy et al. (1984) as organizing frameworks for this study, I have sought to understand whether (a) temperament, gender, or family type moderate the associations among family economic distress, maternal mood problems, family processes, association with deviant peers, and adolescents' antisocial behaviors and (b) the hypothesized structural relationships among the variables in the model held, irrespective of temperament, gender, and family type.

An Examination of the Specified Model

Results from the path analyses provided support for the hypothesized relationships. Analyses showed that a decrease in family income was associated with increased maternal mood problems (Conger et al., 1992; Dressler, 1985; McLoyd, 1990; McLoyd et al., 1994; Myers & Taylor, 1998). Increased maternal mood problems were related to heightened family conflict and a reduction in family warmth (Conger et al., 1984; Halpem, 1990; Lempers et al., 1989; McLoyd et al., 1994; McLoyd & Wilson, 1991; Myers & Taylor, 1998; Wahler & Dumas, 1989). Elevated levels of family conflict led to increased levels of both association with deviant peers and antisocial behaviors. Increased association with deviant peers also were found to be related to higher frequency of antisocial behaviors (Ary et al., 1999; Conger, Rueter, & Conger, 1994; DiLalla & Gottesman, 1989; Dishion, 1990a, 1990b; Laird et al., 1999; Loeber & Hay, 1997; Patterson & Dishion, 1985; Quinton, Pickles, Maughan, & Rutter, 1993). This finding is consistent with the assertion that friends have more opportunities to model and reinforce antisocial

behaviors for and in each other. Adolescents may imitate the behavior of desired friends (Dishion et al., 1995; Laird et al., 1999), and involvement with antisocial peers seems to lead to increased antisocial behaviors (Conger et al., 1991; Conger & Rueter, 1996; Keena et al., 1995; Simons, Whitbeck, Conger, & Conger, 1991).

Although the roles of parental monitoring and supervision were not investigated, several investigators (e.g., Ary et al., 1999; Dishion et al., 1991; Elliott, Huizinga, & Ageton, 1985; Jensen, 1972; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995; Mason, Cauce, Gonzales, & Hiraga, 1994; Poole & Regoli, 1979; Snyder et al., 1986; Wahler & Dumas, 1989; Warr, 1993b) have suggested that adolescents' association with deviant peers is a function of parental monitoring and supervision and the reciprocal relationship between delinquency and parental supervision (Agnew, 1985; Amhert, 1992; Liska & Reed, 1985; Lytton, 1990; Paternoster, 1988; Peterson & Rollins, 1987), such that weak supervision leads to increased delinquency, which in turn further undermines parental supervision (Agnew, 1985; Amhert, 1992; Liska & Reed, 1985; Lytton, 1990; Paternoster, 1988; Peterson & Rollins, 1987),

An increase in family warmth was found to be associated with reduced antisocial behaviors. This finding supports others' (Garmezy, 1991; Masten et al., 1988; Taylor et al., 1993; Werner, 1990; Werner & Smith, 1982; Wyman et al., 1992) findings that a warm, caring, and supportive family environment is related to positive adaptation.

Family Type Effects

Analyses indicated that family type moderated the association between family conflict, family warmth, and antisocial behaviors. Results showed that, as family conflict increased, there was a significant increase in antisocial behaviors among adolescents in mother-alone and mother-stepfather families relative to those in intact and mother-other adult families. Also, an increase in

family warmth was found to be associated with a greater reduction in antisocial behaviors among adolescents in intact, mother-stepfather, and mother-other adult families compared to those in mother-alone families.

The differential effects of family structure support the findings of various investigators (e.g., Baer, 1999; Bartko & Sameroff, 1999; Blum, Bearinger, & Resnick, 2000; Cooper et al., 1995; Kellam et al., 1977; McLanahan, 1985) who have observed family type to be associated with differential outcomes for adolescents. For example, Blum et al. (2000) reported that a child being in a single-parent family compared to a two-parent family was associated with higher incidence of antisocial behaviors. Cooper et al. (1995) found that living in a single-parent or stepparent family type was a risk factor for children's development of antisocial behaviors, and Bartko and Sameroff (1999) also showed that adolescents from single-parent families compared with those from two-parent families exhibited heightened problem behaviors.

In trying to account for these findings, I noticed that mother-alone families had lower incomes relative to all other family types. This finding provides support for the suggestion that inadequate economic resources and exposure to negative events account for the detrimental effects observed in single-parent families (Biblarz & Raftery, 1999; Biblarz et al., 1997; Thomson et al., 1994). This finding is consistent also with the findings of Williams, Auslander, Houston, Krebill, and Haire-Joshu (2000) who reported that family structure influences the economic well-being of African American women.

The finding that mother-stepfather families experienced increased levels of conflict and higher levels of antisocial behaviors are consistent with research reports of behavior problems being higher in children of remarried parents (Bray & Berger, 1993; Fine et al., 1993; Hetherington & Clingempeel, 1992). For example, Kim et al. (1999) reported that mother-stepfather families relative to intact families had more aversive relationships and elevated levels of

children's `antisocial behaviors.

Effects of Temperament

The results of the differential effects of temperament suggested that family conflict was related to a greater incidence of antisocial behaviors for adolescents categorized as having a difficult temperament relative to those classified as being of an easy temperament. Also an increase in family warmth was related to a greater reduction in antisocial behaviors for adolescents with a difficult temperament relative to those classified as being of an easy temperament. These results supported the temperamental explanation which contends that antisocial behaviors are an expression of an underlying trait (Caspi, Henry, McGee, Moffitt, & Silva, 1995; Gottfredson & Hirschi, 1990; Henry, Caspi, Moffitt, Silva, 1996 Kazdin, 987; Lytton, 1990; Moffitt, 1993; Quay, Routh, & Shapiro, 1987) and that some children are more impulsive and behaviorally undercontrolled than other children (Gottfredson & Hirschi, 1990; Moffitt, 1993, 1997; Watson & Clarke, 1993).

Stice and Gonzales (1998) reported that adolescent temperament moderated the relations between parenting practices and adolescents' antisocial behavior and substance use. Raikkonen, Katainen, Keskivaara, and Keltikangas-Jarvinen (2000) also found that maternal reports of perceived difficultness of the child and aversive maternal childrearing attitudes predicted adolescents' self-rated antisocial attitudes. These results also are consistent with the findings of Seifer, Sameroff, Barret, and Krafchuk (1994) and Darling and Steinberg (1993) that mothers' negative global attitude toward their children is an important predictor of adolescent hostility.

The findings regarding the differential effects of temperament are consonant with the theorizing of Bronfenbrenner and Morris (1998) who argued that a difficult temperament (otherwise called developmentally disruptive trait) may impede parent-child relations and hinder

proper child adjustment. The results are consonant with the hypothesis proposed by Stice and Gonzales (1998) and Kochanska (1993) when they argued that (a) temperament may interact with parenting practices and (b) children with a difficult temperament would be expected to exhibit more behavior problems relative to those with an easy temperament.

The finding that increased family warmth was related to reduced antisocial behaviors for adolescents with a difficult temperament supports the notion that family warmth serves a protective function, especially for children who may be at increased risk because of individual factors (Garmezy, 1991; Masten et al., 1988; Taylor et al., 1993; Werner, 1990; Werner & Smith, 1982; Wyman et al., 1992).

Gender Effects

A comparison of all the models did not reveal any gender differences. Various researchers (e.g., Cairns & Cairns, 1988; Marcus, 1999; Offord, Boyle, & Racine, 1997) have provided evidence that indicates that males compared with females display greater antisocial behaviors. Marcus (1999) found that males showed more aggressive behavior (e.g., fighting when angered), whereas females displayed greater class cutting and public drunkenness. The fact that gender did not moderate any of the models tested could be interpreted to mean that this sample of adolescent males and females did not differ in the form of antisocial behaviors exhibited. If that is the case, then it lends credence to the findings of Chesney-Lind and Sheldon (1998) that girls engage in antisocial behaviors that characteristic of boys.

Another possibility is that the use of a single index to measure antisocial behaviors masks the differences that may be apparent when multiple indicators of the construct of antisocial behaviors are used. If that is the case, then it is possible that the findings of these investigators (e.g., Cairns et al., 1988; Cairns et al., 1989; Crick, 1996; Crick & Grotpeter, 1995; Ferguson et

al., 1994; Hay, 1994; Rhodes & Fischer, 1993; Salem et al., 1998; Simons, Johnson, Beaman, Conger, & Whitbeck, 1996) regarding the differences in the expression of antisocial behaviors between boys and girls might reflect the nature of things.

The findings that the pathway through which economic distress impacts African-American adolescent males and females does not differ lends support to the speculations of Cairns and Cairns (1994) who argued it is possible that the pathway to girls' antisocial development might be similar to that of boys' antisocial development. For example, Caspi, et al. (1993) presented evidence that showed that girls followed a similar path to that outlined by Patterson et al. (1992) for boys. In adolescence, these girls associated with deviant peer groups and exhibited antisocial behavior. Other research has also shown that the correlates of antisocial behaviors did not differ by gender (e.g., Conger et al., 1991; Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994; Huizinga, Esbensen, & Weiher, 1991; Simons, Miller, & Aigner, 1980). Other studies, however, have found evidence of differences in family correlates of antisocial behaviors between boys and girls (e.g., Kavanagh & Hops, 1994; Lytton & Romney, 1991; Rothbaum & Weisz, 1994).

Contributions

Using a cross-sectional approach, this study contributes to our understanding of the processes through which economic distress impacts African American adolescents' antisocial behaviors. The study reveals that family income has an indirect effect on adolescent antisocial behaviors through its influence on maternal mood problems, family processes, and association with deviant peers.

The findings from the study revealed that the specified model is applicable irrespective of temperament, gender, or family type. The model also increases our understanding of the moderational roles of temperament and family type in the associations among family income,

maternal well-being, family conflict, family warmth, association with deviant peers, and antisocial behaviors. The model also showed the pathways through which economic distress impacts antisocial behaviors may not be significantly different for African-American males and females.

The results obtained in the analyses are important because they suggest a more optimistic view of children's adjustment. If the association is mediated by the quality of parenting, such deterioration in children's social competence might be prevented by helping parents to sustain effective parenting practices in the face of adversity.

Limitations and Recommendations

There are several limitations of this study that are worth mentioning. First, although the model tested supports the findings of earlier studies using different samples and different ethnic groups, the model for the present study is not claimed to be exhaustive. Equivalent models with different paths and variables than those included in this study also could account for the variation that was observed in this study (Spirtes, Richardson, Meek, Scheines, & Glymour, 1998). Although the models had a good fit, it is not the same as strength of relationship. The lower path coefficients in the model could have made it easier to find good fit, because it makes it harder to reject an improperly specified model as models with stronger path weights have more power to detect an incorrect model. Additionally, a good fit does not mean each particular part of the model fits well.

The data set had limitations in that the variables of interest were not collected at all three time points from the respondents making a longitudinal assessment of the model impossible. Another limitation of the study was the use of data from a single informant, the mother who rated both parental and child behaviors and family processes. The sample used in the study also consisted of only African-American adolescents from a low-income neighborhood. Until these

results are replicated with other samples, the results need to interpreted with caution as they may not apply to other samples.

The paths are only correlational and do not imply causation. The association between family conflict and association with deviant peers may reflect the effect of the adolescent on the parent. This is consistent with the idea that socialization is bidirectional and that children do contribute to negative parenting and antisocial behaviors within a reciprocal parent-child relationship (Agnew, 1985; Amhert, 1992; Liska & Reed, 1985; Lytton, 1990; Paternoster, 1988; Patterson, 1982; Peterson & Rollins, 1987). Some studies (Patterson, 1982; Patterson & Stouthamer-Loeber, 1984) have demonstrated that parental monitoring and peer relations become increasingly important as children grow older and spend relatively more unsupervised time with peers outside the home. Given the consistent finding in the literature that peer group constitutes a key variable in the initiation and prolongation of externalizing behavior in middle childhood and adolescence, and the difficulty of imposing coercive discipline practices on adolescents (Dishion, 1990a, 1990b; Dishion et al., 1991; Patterson & Bank, 1991; Rutter, 1994), it is conceivable that parental supervision and monitoring were the mechanisms that mediated adolescents' association with deviant peers rather than family conflict and family warmth as hypothesized in the present study.

A few recommendations are noteworthy for purposes of future research given the limitations noted earlier. First, it would be useful to examine the hypothesized model using a more diversified sample to find out if the results obtained with this particular sample would generalize to the diversified sample. Second, given research that suggests a mediating role for parental monitoring and association with deviant peers as mechanisms that influence adolescent competence, it would be useful to include in future studies an indicator of the former construct to assess their effects on the associations noted in this study. Thus, the goal would be to explore

alternative models that examine the link between economic distress and adolescents' social competence. Lastly, longitudinal analysis would help explicate some of the mechanisms through which economic distress impacts adolescents' social competence.

Implications

The impact of family related factors on the development of antisocial behavior is well documented. Disruptions in family management practices (Patterson, 1986), high rates of conflict and low rates of parental involvement (Baumrind, 1991), and the lack of parental investment and attachment to children (Brook, Nomura, & Cohen, 1989) all create vulnerability to various problems in adolescents. In contrast, positive parenting practices such as positiveness and behavioral monitoring foster psychological well-being and protect children against negative environmental influence (Steinberg, 1990).

Using the ecological theory and the concepts of risk and protective factors, one common theme is arrived at: problem behaviors develop from a complex interaction between individual, familial, and environmental factors. Furthermore, empirical findings pertaining to risk and protective factors consistently highlight the importance of attachment to family and other prosocial resources as being important for protecting adolescents from antisocial outcomes (Hawkins, Catalano, & Miller, 1992). If the results obtained in this analyses are true, then these findings provide an optimistic view of the continuity of antisocial behaviors. As suggested, if the association is mediated by quality of parenting, such escalation might be prevented by helping parents to sustain effective parenting practices in the face of behavior problems. Additionally, community resources in the form of other caring adults or mentors could be provided to parents who feel stressed are not unable to parent effectively.

In summary, the results of this study supports an ecological approach that distinguishes

between distal and proximal variables (Baldwin et al., 1990). It shows that both variables operate differently, with proximal variables being the most important. Also, despite the limitations, the multi-group analysis showed differential association of family processes with adolescent antisocial and depressive symptoms for adolescents in different family types. In all, it appeared that adolescents in single-parent families fared the worst as maternal psychological well-being was related to greater antisocial behaviors among these adolescents than in any other family type. Additionally, family warmth was associated with a greater reduction in antisocial behaviors in other family types compared with single-parent families.

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APPENDIX

LIST OF APPENDICES

APPENDIX PAGE

PART 2

Study 1

PART 3

Study 2

Appendix 2.1. Sample Items for Index Maternal Mood Problems

Next, I have the same questions about how you've been feeling for the past several weeks. I will read you the words again; only this time, tell me how much you've felt this way over the last several weeks.

	Very, Very Much	Very Much	Pretty Much	Some	A Little	Not at All
1. Nervous	6	5	4	3	2	1
2. Tense	6	5	4	3	2	1
3. Anxious	6	5	4	3	2	1
4. Sad	6	5	4	3	2	1
5. Hopeless	6	5	4	3	2	1
6. Ashamed	6	5	4	3	2	1
7. Blamed yourself	6	5	4	3	2	1

Appendix 2.2. Sample Questions for Index of Family Conflict

And about how often do (NAME) and you (or other adults in the house) do the following things openly with each other? First how often do you (READ ITEM A AND CODES). Repeat for each item.

	Several times a week	At least once a week	About every 2 weeks	Once a month	Every few months	Less Often
1. Have arguments with one another	6	5	4	3	2	1
2. Yell or shout to let off	6	5	4	3	2	1
3. Lt out hurt and angry feelings	6	5	4	3	2	1
4. Throw things when angry	6	5	4	3	2	1
5. Slam doors in anger	6	5	4	3	2	1

Appendix 2.3. Sample Questions for Index of Family Warmth

And about how often do (NAME) and you (or other adults in the house) do the following things openly with each other? First how often do you (READ ITEM A AND CODES). Repeat for each item.

	Several times a week	At least once a week	About every 2 weeks	Once a month	Every few months	Less Often
1. Act warm and loving	6	5	4	3	2	1
2. Hug and kiss	6	5	4	3	2	1
3. Bring each other little unexpected gifts	6	5	4	3	2	1
4. Be understanding of each others moods	6	5	4	3	2	1
5. Say nice things to each other	6	5	4	3	2	1

Appendix 2.4. Sample Items for Index of Locus of Control

Thinking about how (NAME) is doing overall, how much is each of the following responsible? How much is (READ A) responsible–would you say very, very much; very much; pretty much; some; a little; or not at all responsible for (NAME) is doing? REPEAT FOR ALL ITEMS.

	Very, very much	Very much	Pretty much	Some	A little	Not at all
1. God	6	5	4	3	2	1
2. Luck	6	5	4	3	2	1
3. The way society is	6	5	4	3	2	1
4. The way (his/her) teachers are	6	5	4	3	2	1
5. The way the family is	6	5	4	3	2	1
6. The way (his/her) friends are	6	5	4	3	2	1
7. The way (he/she) is	6	5	4	3	2	1

Appendix 2.5. Sample Items for Index of Adolescents' Depression

For each word or words, I give you, tell me how much (NAME) has felt this way over the last several weeks.

	Very, very much	Very much	Pretty much	Some	A little	Not at all
1. Nervous	6	5	4	3	2	1
2. Tense	6	5	4	3	2	1
3. Anxious	6	5	4	3	2	1
4. Sad	6	5	4	3	2	1
5. Hopeless	6	5	4	3	2	1
6. Ashamed	6	5	4	3	2	1
7. Blamed (him/her) self	6	5	4	3	2	1

Appendix 2.6. Sample Items for Index of Antisocial Behaviors

Here are a number of things that young people sometimes do that could get them into trouble. Please tell us if (NAME) had done any of these things in the last 3 years.

	Yes	No	5 or more times	3 or 4 times	Twice	Once
1. Stayed out later than (his/her) parents said (he/she) should.	1	2	3	4	5	6
2. Got into a serious fight with a student in school.	1	2	3	4	5	6
3. Run away from home.	1	2	3	4	5	6
4. Gone into someone's house or building when (he/she) wasn't supposed to be there.	1	2	3	4	5	6
5. Been suspended or expelled from school.	1	2	3	4	5	6
6. Got something by threatening a person.	1	2	3	4	5	6
7. Argued or had a fight with either of (his/her) parents.	1	2	3	4	5	6
8. Got into trouble with the police.	1	2	3	4	5	6
9. Hurt someone badly enough to need bandages or a doctor.	1	2	3	4	5	6
10. Damaged school property on purpose.	1	2	3	4	5	6
11. Taken something from a store without paying for it.	1	2	3	4	5	6
12. Hit a teacher.	1	2	3	4	5	6
13. Drunk beer or liquor without parents' permission.	1	2	3	4	5	6
14. Smoked in school.	1	2	3	4	5	6
15. Carried a weapon.	1	2	3	4	5	6
16. Taken a car that didn't belong to someone in your family without permission of the owner.	1	2	3	4	5	6
17. Taken a part of someone's car.	1	2	3	4	5	6
18. Taken part in a gang fight.	1	2	3	4	5	6
19. Taken something not belonging to (him/her).	1	2	3	4	5	6
20. Had to bring parents to school because of something (he/she) did.	1	2	3	4	5	6
21. Skipped a day of school without a real excuse.	1	2	3	4	5	6

Appendix 2.7. Intercorrelations Among Variables in Path-Analytic Model A

	Variables in the Study										
	1	2	3	4	5	6	7	8	9	M	SD
1. Income	–									8957.01	5723.05
2. Maternal Mood Problems	-.13**	–								14.28	5.52
3. Family Conflict	.004	.17**	–							13.39	6.09
4. Family Warmth	.13**	-.12**	-.05	–						20.90	5.17
5. Adolescent Depression	-.04	.43**	.19**	-.09*	–					12.07	4.49
6. Antisocial Behaviors	-.08*	.19**	.32**	-.24**	.24**	–				25.84	6.47
7. Locus of Control	.05	.04	-.07	.14**	.02	-.07*	–			22.8	5.2
8. Mother-Alone Family	-.48**	.10**	.02	-.04	.04	.09**	.007	–		.41	.49
9. Mother-Stepfather Family	.21**	-.002	.03	.06	.05	.06	-.08*	-.25**	–	.08	.27
10. Mother-Other Adult Family	-.09*	.03	.02	-.03	-.002	-.003	-.004	-.43**	-.15**	.29	.40

* = $p < .05$; ** = $p < .01$

Appendix 3.1. Sample Questions for Maternal Mood Problems

Next, I have the same questions about how you've been feeling for the past several weeks. I will read you the words again; only this time, tell me how much you've felt this way over the last several weeks.

	Very, Very Much	Very Much	Pretty Much	Some	A Little	Not at All
1. Nervous	6	5	4	3	2	1
2. Tense	6	5	4	3	2	1
3. Anxious	6	5	4	3	2	1
4. Sad	6	5	4	3	2	1
5. Hopeless	6	5	4	3	2	1
6. Ashamed	6	5	4	3	2	1
7. Blamed yourself	6	5	4	3	2	1

Appendix 3.2. Sample Items for Index of Family Conflict

And about how often do (NAME) and you (or other adults in the house) do the following things openly with each other? First how often do you (READ ITEM A AND CODES). Repeat for each item.

	Several times a week	At least once a week	About every 2 weeks	Once a month	Every few months	Less Often
1. Have arguments with one another	6	5	4	3	2	1
2. Yell or shout to let off	6	5	4	3	2	1
3. Lt out hurt and angry feelings	6	5	4	3	2	1
4. Throw things when angry	6	5	4	3	2	1
5. Slam doors in anger	6	5	4	3	2	1

Appendix 3.3. Sample Items for Index of Family Warmth

And about how often do (NAME) and you (or other adults in the house) do the following things openly with each other? First how often do you (READ ITEM A AND CODES). Repeat for each item.

	Several times a week	At least once a week	About every 2 weeks	Once a month	Every few months	Less Often
1. Act warm and loving	6	5	4	3	2	1
2. Hug and kiss	6	5	4	3	2	1
3. Bring each other little unexpected gifts	6	5	4	3	2	1
4. Be understanding of each others moods	6	5	4	3	2	1
5. Say nice things to each other	6	5	4	3	2	1

Appendix 3.4. Sample Items for Index of Association with Peers

How many of (NAME'S) close friends have tried the cigarettes? Would you say . . . READ CODES. REPEAT FOR B, C, D.

	A. Cigarettes	B. Beer or Wine	C. Hard liquor	D. Marijuana
None				
Few				
Some				
Most				
All				
(I don't know) . .				

Appendix 3.5. Sample Items for Index of Temperament

I am going describe different types of young people. For each type, please tell me how much like that (NAME) is. READ ALL ITEM A. Is (NAME) very, very much like that; very much like that; pretty much like that; somewhat like that; a little like that; or not at all like that. REPEAT FOR ALL ITEMS.

	Very, very much	Very much	Pretty Much	Some	A Little	Not at all
1. Fights too much, doesn't obey you, destroys things, lies to you, resists you.	6	5	4	3	2	1
2. Is awfully restless, fidgets all the time, can't sit still.	6	5	4	3	2	1

Appendix 3.6. Sample Items for Scale of Adolescent Antisocial Behaviors.

Here are a number of things that young people sometimes do that could get them into trouble. Please tell us if (NAME) had done any of these things in the last 3 years.

	Yes	No	5 or more times	3 or 4 times	Twice	Once
1. Stayed out later than (his/her) parents said (he/she) should.	1	2	3	4	5	6
2. Got into a serious fight with a student in school.	1	2	3	4	5	6
3. Run away from home.	1	2	3	4	5	6
4. Gone into someone's house or building when (he/she) wasn't supposed to be there.	1	2	3	4	5	6
5. Been suspended or expelled from school.	1	2	3	4	5	6
6. Got something by threatening a person.	1	2	3	4	5	6
7. Argued or had a fight with either of (his/her) parents.	1	2	3	4	5	6
8. Got into trouble with the police.	1	2	3	4	5	6
9. Hurt someone badly enough to need bandages or a doctor.	1	2	3	4	5	6
10. Damaged school property on purpose.	1	2	3	4	5	6
11. Taken something from a store without paying for it.	1	2	3	4	5	6
12. Hit a teacher.	1	2	3	4	5	6
13. Drunk beer or liquor without parents' permission.	1	2	3	4	5	6
14. Smoked in school.	1	2	3	4	5	6
15. Carried a weapon.	1	2	3	4	5	6
16. Taken a car that didn't belong to someone in your family without permission of the owner.	1	2	3	4	5	6
17. Taken a part of someone's car.	1	2	3	4	5	6
18. Taken part in a gang fight.	1	2	3	4	5	6
19. Taken something not belonging to (him/her).	1	2	3	4	5	6
20. Had to bring parents to school because of something (he/she) did.	1	2	3	4	5	6
21. Skipped a day of school without a real excuse.	1	2	3	4	5	6

Appendix 3.7. Intercorrelations Among the Variables in Path-Analytic Model B

	Variables in the Study										
	1	2	3	4	5	6	7	8	9	M	SD
1. Income	–									8957.01	5723.05
2. Maternal Mood Problems	-.13**	–								14.28	5.52
3. Family Warmth	.13**	-.12**	–							20.90	5.17
4. Family Conflict	.004	.17**	-.05	–						13.39	6.09
5. Peer Association	.03	.004	-.06	.09*	–					3.21	.99
6. Temperament	.02	.16**	-.14**	.23*	.05	–				3.71	2.27
7. Gender	-.02	.06	-.13**	-.01	.20**	.08*	–			.49	.50
8. Mother-Alone Family	-.48**	.10**	-.04	.02	-.03	-.01	.05	–		.41	.49
9. Mother-Stepfather	.21**	-.002	.06	.03	.02	.05	.01	-.25**	–	.08	.27
10. Mother-Other Adult	-.09*	.03	-.03	.02	.04	.02	.01	-.43**	-.15**	.20	.40

* = $p < .05$; ** = $p < .01$

VITA

Godwin S. Ashiabi graduated from the University of Ghana in 1992 with a Baccalaureate degree in Psychology and a minor in Philosophy. After a year of national service as a teaching assistant at the Department of Psychology, University of Ghana, he attended Wilfrid Laurier University, Waterloo, Ontario, Canada, where he graduated in 1995 with a Master's degree in psychology. At Wilfrid Laurier University he served as a teaching/research assistant whose duties included assisting with courses in community psychology, the psychology of exceptional children, youths, and adults, and research on family violence. Post graduation, Godwin Ashiabi worked with his advisor, Dr. Ed Bennett until he commenced his doctoral program at The University of Tennessee, Knoxville, in August 1997. At the University of Tennessee, he worked as a graduate assistant in the child development laboratories and taught courses in introduction to human development, human ecology, and statistics. He is presently working with the University of Missouri, Outreach and Extension as a Regional Human Development Specialist for the South Central Region.