

5-8-2004

## Modeling the Effects of Interparental Violence on Youth

Christopher Dehon  
*University of New Orleans*

Follow this and additional works at: <https://scholarworks.uno.edu/td>

---

### Recommended Citation

Dehon, Christopher, "Modeling the Effects of Interparental Violence on Youth" (2004). *University of New Orleans Theses and Dissertations*. 172.  
<https://scholarworks.uno.edu/td/172>

This Dissertation is protected by copyright and/or related rights. It has been brought to you by ScholarWorks@UNO with permission from the rights-holder(s). You are free to use this Dissertation in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself.

This Dissertation has been accepted for inclusion in University of New Orleans Theses and Dissertations by an authorized administrator of ScholarWorks@UNO. For more information, please contact [scholarworks@uno.edu](mailto:scholarworks@uno.edu).

MODELING THE EFFECTS OF  
INTERPARENTAL VIOLENCE ON YOUTH

A Dissertation

Submitted to the Graduate Faculty of the  
University of New Orleans  
in partial fulfillment of the  
requirements for the degree of

Doctor of Philosophy  
in  
The Department of Applied Developmental Psychology Program

by

Christopher Dehon

B. A., Loyola University, 2000

M. S., University of New Orleans, 2002

August 2004

## TABLE OF CONTENTS

LIST OF TABLES .....	iv
LIST OF FIGURES .....	v
ABSTRACT .....	v
INTRODUCTION .....	1
METHODS .....	20
RESULTS .....	36
DISCUSSION .....	85
REFERENCES .....	97
APPENDIX A .....	111
APPENDIX B .....	115
APPENDIX C .....	119
APPENDIX D .....	124
APPENDIX E .....	128
VITA .....	145

## ACKNOWLEDGEMENTS

Thank you to Carl Weems for being an excellent mentor for the last two years. Thank you to Tim Stickle for getting this all started. I thank Michael Scheeringa for getting me interested in childhood trauma. Thank you to Paul Frick, Amanda Morris, and Leighton Stamps for their guidance during this project.

Thank you to my parents, Maureen and Pat Dehon, for all of their help and support during the last four years. Thank you to my grandfather, Mike Early, for always encouraging me to go on. Thank you to my grandmothers, Leah Early and Margaret Dehon, for their love and support. Thank you to Robert and Elizabeth of Fair Grinds for giving me a great place to work. Thank you to Jim Mounger, who has given me a way to make it through these four years.

Thank you to Chloe, my beautiful daughter, who has kept it all in perspective for me. Most of all, thank you to my beautiful wife and the most wonderful woman I have ever met. Kim has been my biggest fan and has encouraged and supported me all of the way.

## LIST OF TABLES

Table 1 - Physical Violence Items for Parent and Child Report.....	22
Table 2 - Nested Model Comparison of Child Report of Parenting Scales .....	26
Table 3 - Final Scales for Parenting Child Report With Standardized Factor Loadings .....	27
Table 4 – Final Scales for Parenting Parent Report With Standardized Factor Loadings .....	28
Table 5 - Means and Standard Deviations for Maternal and Child Report of Violence.....	36
Table 6 - Descriptive Statistics .....	38
Table 7 - Correlations Among Predictor Variables for Battered and Nonbattered Groups...	40
Table 8 - Model Comparison of Internalizing Models with and Without Direct Path from Interparental Violence.....	50
Table 9 - Model Comparison of Externalizing Models with and Without Direct Path from Interparental Violence.....	61
Table 10 - Model Comparison of Internalizing Models with and Without Direct Path from Maternal Depression .....	71
Table 11 - Model Comparison of Externalizing Models with and Without Direct Path from Maternal Depression .....	77

## LIST OF FIGURES

Figure 1- Indirect Path Model.....	9
Figure 2 - Higher Order Model of Parent and Child Report of Parenting .....	30
Figure 3 – Revised Higher Order Model .....	31
Figure 4 –Structural Model – Internalizing Problems .....	47
Figure 5 – Structural Model – Internalizing Problems with Direct Path from Interparental Violence .....	48
Figure 6 – Structural Model – Internalizing Problems for Nonbattered Group Only .....	52
Figure 7 – Structural Model – Internalizing Problems for Nonbattered Group Only with Direct Path from Interparental Violence.....	53
Figure 8 – Structural Model – Internalizing Problems for Battered Group Only .....	55
Figure 9 – Structural Model – Internalizing Problems for Battered Group Only with Direct Path from Interparental Violence.....	56
Figure 10 – Structural Model – Externalizing Problems .....	58
Figure 11 – Structural Model – Externalizing Problems with Direct Path from Interparental Violence.....	60
Figure 12 – Structural Model – Externalizing Problems for Nonbattered Group Only .....	63
Figure 13 – Structural Model – Externalizing Problems for Nonbattered Group Only with Direct Path from Interparental Violence.....	64
Figure 14 – Structural Model – Externalizing Problems for Battered Group Only .....	66
Figure 15 – Structural Model – Externalizing Problems for Battered Group Only with Direct Path from Interparental Violence.....	67

Figure 16 – Structural Model – Internalizing Problems with Direct Path from Maternal Depression.....	70
Figure 17 – Structural Model – Internalizing Problems with Direct Path from Maternal Depression Nonbattered Group Only.....	73
Figure 18 – Structural Model – Internalizing Problems with Direct Path from Maternal Depression Battered Group Only.....	74
Figure 19 – Structural Model – Externalizing Problems with Direct Path from Maternal Depression.....	76
Figure 20 – Structural Model – Externalizing Problems with Direct Path from Maternal Depression Nonbattered Group Only.....	79
Figure 21 – Structural Model – Externalizing Problems with Direct Path from Maternal Depression Battered Group Only.....	81
Figure A1 – Distribution of Child Reported Interparental Violence for Battered Group.....	111
Figure A2 – Distribution of Child Reported Interparental Violence for Nonbattered Group.....	112
Figure A3 – Distribution of Child Reported Interparental Violence for Entire Sample .....	113
Figure B1 – Distribution of Mother Reported Interparental Violence for Battered Group ...	115
Figure B2 – Distribution of Mother Reported Interparental Violence for Nonbattered Group.....	116
Figure B3 – Distribution of Mother Reported Interparental Violence for Entire Sample .....	117
Figure C1 – Measurement Model for Internalizing Problems .....	119
Figure C2 – Modified Measurement Model for Internalizing Problems .....	120
Figure C3 – Measurement Model for Internalizing Problems-Nonbattered Group Only.....	121

Figure C4 – Measurement Model for Internalizing Problems – Battered Group Only .....	122
Figure D1 – Measurement Model for Externalizing Problems.....	124
Figure D2 – Measurement Model for Externalizing Problems – Nonbattered Group Only .	125
Figure D3 – Measurement Model for Externalizing Problems – Battered Group Only.....	126
Figure E1 – Structural Model Internalizing Problems & Maternal Psychological Distress..	128
Figure E2 - Structural Model Externalizing Problems & Maternal Psychological Distress..	129
Figure E3 –Structural Model Internalizing Problems & Maternal Anxiety .....	130
Figure E4 - Structural Model Externalizing Problems & Maternal Anxiety .....	131
Figure E5 – Structural Model Internalizing Problems, Maternal Anxiety and Depression...	132
Figure E6 - Structural Model Externalizing Problems, Maternal Anxiety and Depression ..	133
Figure E7 – Structural Model Internalizing Problems, Maternal Other Psychological Distress .....	134
Figure E8 - Structural Model Externalizing Problems, Maternal Other Psychological Distress .....	137



## ABSTRACT

This study examined the link between interparental violence and children's functioning. The goal of the study was to examine an indirect pathway of the effect of interparental violence on children's internalizing and externalizing problems. The data for the study was drawn from The Women and Family Project and included 359 women and one of their children between the ages of 5 and 12-years-old. Sixty-four of these women resided in a battered women's shelter, 100 of these women resided in the community but had a history of interparental violence, and 195 of these women were recruited as a comparison sample. Interparental violence, maternal parenting practices, maternal depression, and children's internalizing and externalizing problems were assessed via interviews with mothers and their children. An indirect pathway hypothesis of the effects of interparental violence which posits that interparental violence leads to maternal depression, maternal depression leads to maternal use of maladaptive parenting practices, and maternal maladaptive parenting practices lead to children's internalizing and externalizing problems was tested using structural equation modeling. This new model of the indirect effects of interparental violence was supported by the results of the structural equation models when tested on the sample as a whole as well as separately for the battered and nonbattered sample. A second indirect pathway, though, was more strongly supported. This second model indicates that interparental violence affects children through maternal depression, which is directly related to children's internalizing and externalizing problems. The results of the present study support the importance of indirect pathways of the effects of interparental violence on children.

## INTRODUCTION

Straus (1990a) defines violence as any act carried out with the intention of causing physical pain or injury to another person. The particular type of violence that the present study is concerned with is the violence inflicted upon mothers by their partners. It is estimated that 50 percent of women will be the victims of physical violence at the hands of their partner during their lifetime (Corsilles, 1994). This is the primary reason for physical injury to women (Corsilles, 1994). It is important to understand the effects that this may have on children as more than 10 million children per year witness physical assault between their parents (Straus, 1992). In two thirds of these cases, the physical violence between their parents is chronic (Straus, 1992). Children who witness interparental violence often exhibit elevated rates of both externalizing (Buehler, Anthony, Krishnakumar, Stone, Gerard, & Pemberton, 1997; Criss, Petit, Bates, Dodge, & Lapp, 2002; Cummings, Davies, & Simpson, 1994; Grynych, Fincham, Jouriles, & McDonald, 2000) and internalizing (Cummings, Davies, & Simpson, 1994; Grynych, Fincham, Jouriles, & McDonald, 2000) problems. Studies of interparental violence have examined both direct and indirect effects of interparental violence on children.

Direct effects of interparental violence on children are the result of children witnessing the acts of physical violence. Studies of the direct effects of interparental violence focus on the immediate reaction of the child to witnessing this violence and the psychological and behavioral outcomes of these immediate reactions. Indirect effects of interparental violence are those that are the result of changes in children's environments that occur as a result of the occurrence of physical violence between parents. Studies of the indirect effects of interparental violence generally focus on changes in maternal functioning, including changes in maternal psychological functioning and changes in maternal parenting practices. Evidence to date supports changes in

women's psychological functioning following abuse as these women are at an elevated risk for the development of depression (Jaffe, Wolfe, Wilson, & Zak, 1985; Jaffe, Wolfe, Wilson, & Zak, 1986). In addition to psychological functioning, there may also be disruptions in maternal parenting practices following interparental violence. Davis and Siegel (2000) have suggested that changes in parenting may explain the increase in externalizing problems often exhibited by children following trauma. In the sections that follow first the direct effects of interparental violence are reviewed. Next, research is presented which supports indirect effects of interparental violence through maternal depression and disruptions in maternal parenting practices. Lastly, a new model of the indirect effects of interparental violence on children is presented, which integrates earlier models into a new and complete model of the effects of interparental violence on youth.

#### *Direct Effects of Interparental Violence*

There are two types of studies involving interparental conflict. There are those that focus exclusively on interparental violence, involving samples in which women have experienced physical assault at the hands of their partners. Other studies examine the full range of interparental conflict, ranging from mild verbal disagreements to physical violence. In reviewing the direct effects of interparental violence on children, information is drawn from both studies of interparental conflict as well as studies of interparental violence.

One way to view the direct effect of interparental violence on children is a trauma explanation. These explanations focus on the occurrence of physical violence between parents as a traumatic experience related to internalizing problems such as symptoms of posttraumatic stress disorder (PTSD). Children exposed to any form of violence have been shown to exhibit internalizing problems (Freeman, Mokros, & Poznanski, 1993) as well as symptoms of PTSD

(Fitzpatrick & Boldizar, 1993). Although witnessing violence of any nature may be traumatic for children, witnessing physical assault of their mother is a particularly salient traumatic experience (Scheeringa & Zeanah, 1995). In a school-aged sample, children who witnessed domestic abuse of their mothers were more likely to develop PTSD than children who witnessed violent crimes or accidents (McCloskey & Walker, 2000).

Studies of the direct effect of interparental conflict on PTSD in children typically involve interparental violence. Much of the research on the direct effects of witnessing interparental conflict, though, has focused on normative levels of conflict. These findings are also important in understanding the effects of interparental violence. Interparental violence lies at the extreme end of normative levels of conflict. Thus, studies of the effects of high levels of non-physical interparental conflict helps to understand some of the direct effects that interparental violence may have on children.

Many researchers have found that children who frequently witness interparental conflict are at increased risk for the development of externalizing problems (Buehler et al., 1997, Criss et al., 2002, Cummings et al., 1994; Grynych et al., 2000). A large meta-analysis of studies of the effect of interparental conflict on children's externalizing problems revealed an average effect size of .39, which falls between a small and a medium effect size (Buehler, et al., 1997).

Although earlier studies found that interparental conflict increased externalizing problems more in males than in females (Jaffe, Wolfe, Wilson, & Zak, 1985), this meta-analysis did not find a significant difference between the effect sizes for male and female children.

Interparental conflict is also related to children's internalizing problems (Cummings, Davies, & Simpson, 1994; Grynych, Fincham, Jouriles, & McDonald, 2000). In a meta-analysis of the effects of interparental violence on children, the effect size of interparental conflict on

children's externalizing problems (.39) was not significantly different from the effect size of interparental violence on children's internalizing problems (.31) (Buehler et al., 1997). The relationship of interparental conflict and internalizing problems was consistent in adolescent sample (Durant, Getts, Cadenhead, Emans, & Woods, 1995). There is some indication that younger children are more likely to act out in response to interparental conflict whereas older children are more likely to have internalizing problems as a result of interparental conflict (reviewed in Cummings, 1994). Although there may be differential expressions of disturbance, both older and younger children are adversely affected by interparental conflict, evidenced by increases in both internalizing and externalizing problems.

One factor which is related to the direct effect of interparental violence on children is their history of witnessing interparental conflict (reviewed in Cummings, 1998). For example, Grynych (1998) found that the children's prior experience witnessing physical interparental violence was related to their greater perception of threat as well as their feeling less able to cope with the conflict scenarios. In another sample of children between 2 and 5-years old, the level of physical conflict in the home was related to children's responses to laboratory presented conflict scenarios (Cummings, Pellegrini, Notarius, & Cummings, 1989). The level of physical conflict in the home was related to children's level of social responsibility, measured as comforting their mother, staying close to their mother, and defending their mother. In a sample of 4 to 9-year olds, a history of physical violence in the home was related to greater distress when viewing conflict vignettes (Cummings, Vogel, Cummings, & El-Sheikh, 1989). Even in children as young as 1 to 2-years old, children who view more episodes of interparental conflict displayed more behavioral manifestations of anger and distress when witnessing conflict (Cummings, Zahn-Waxler, & Radke-Yarrow, 1981).

One reason why children who view frequent episodes of interparental violence are more distressed by each episode is that children from homes characterized by violence are also more likely to be physically abused (Straus, 1983). There is evidence that this maltreatment may cause a breakdown of the normal adaptive stress response in children. Hart, Gunnar, and Cicchetti (1985) found that, although maltreated children were highly distressed by classroom conflict, they evidenced lower cortisol responses than control children. Although cortisol is often referred to as a stress hormone, it may better be conceptualized as an “anti-stress” hormone as it serves as an emotion regulating agent by dampening the hyperarousal associated with stressful situations (Shalev, 1996).

Pollak, Cichetti, and Korman (1998) noted that problems in emotion regulation are the most common problems displayed by maltreated children. Using behavior measures, researchers found that children who are maltreated exhibit the extremes of both under-controlled emotion regulation, evidenced by extreme distress, and over-controlled emotion regulation, evidenced by little visible signs of distress, when viewing angry interactions (Maughan & Cicchetti, 2002). In a sample of school-aged children, researchers found that physically abused children reacted with more fear than non-abused children to angry interaction vignettes (Hennessy, Rabideau, Cicchetti, & Cummings, 1994). In a longitudinal study of children, infant difficulty, one indicator of low emotion regulation, interacted with exposure to conflict in predicting depression, anxiety, and withdrawal at age 5 (Shaw, Keenan, Vondra, Delilquadri, & Giovannelli, 1997). Thus, deficits in emotion regulation may explain the heightened distress of children exposed to chronic levels of interparental violence.

Interparental violence is particularly distressful for children as it represents unresolved conflict. When children view unresolved conflict they perceive it as more angry and experience

more distress themselves (Cummings, Vogel, Cummings, El-Sheikh, 1989; Davies, Myers, and Cummings 1996; Hennessey et al., 1994). In an examination of the relationship between conflict endings and children's distress, Shiflett-Simpson and Cummings (1996) varied both the emotionality and the content of the conflict endings in the vignettes they presented to the children. Conflicts could end with either positive or negative emotions exhibited by the parents. Further, they could end in positive (compromise, apology), neutral (topic change, submission), or negative (continued fighting) ways. These researchers found that younger children's (aged 5 to 7) level of distress at the conflict was only related to the type of ending, whereas older children's (aged 9 to 12) level of distress was related both to the type of conflict ending and the emotionality of the actors. Thus, both older and younger children are less distressed when the conflict is resolved, but older children also respond to the emotions expressed by their parents at the end of an argument. Interparental violence, which is both unresolved and characterized by negative emotionality, is likely perceived by both younger and older children as most distressing.

Studies of interparental violence may consistently find direct effects of interparental violence on children's internalizing and externalizing problems. However, direct effect models fail to delineate the specific processes through which interparental violence leads to internalizing and externalizing problems in youth. Unless alternatives to the direct effect hypothesis are tested, one can not rule out indirect mechanisms of effect. For example, knowing that threat to a caregiver is a salient risk factor for the development of PTSD in children does not necessitate a direct effect explanation. The mechanism of this effect could be that a threat to the caregiver is a particularly salient traumatic experience for children, or, alternatively, that the traumatized parents are less able to care for the needs of their children following a trauma in which they too were traumatized (Scheeringa & Zeanah, 1995). Indirect effect hypotheses acknowledge the

trauma experienced by the child, however they posit other avenues through which interparental violence may affect childhood internalizing and externalizing problems. Other avenues explored are changes in parenting practices and increases in maternal depression. In order to test these alternative explanations, “process-oriented research” in the area of interparental violence is needed (Cummings & Davies, 2002). It is important to understand the mechanisms through which interparental violence affects children’s psychological and externalizing problems.

### *Indirect Effects of Interparental Violence*

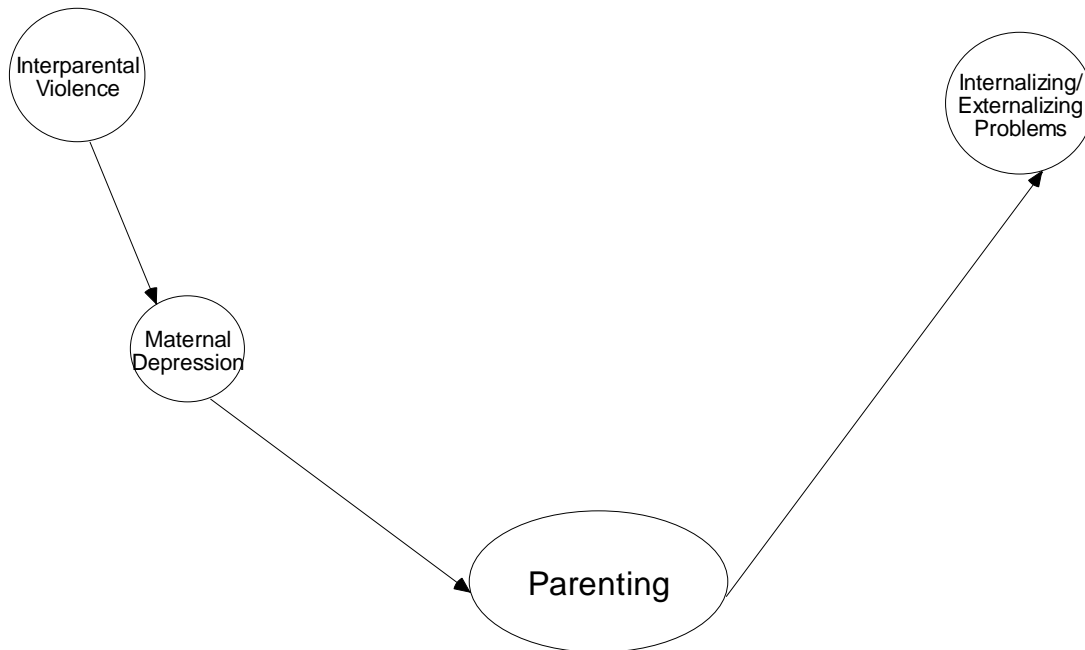
In support of indirect effects of interparental violence, in a sample of children between 8 and 12-years-old researchers found that the occurrence of severe interparental violence was equally related to externalizing problems for those children who observed and did not observe the occurrences of interparental violence (Jouriles, McDonald, Norwood, Ware, Spiller, & Swank, 1998). The mechanisms for the indirect effect of interparental violence on children may be through changes in both maternal psychological functioning and disruptions in maternal parenting practices. There is evidence that battered women experience more psychological problems than non-battered women (Jaffe, Wolfe, Wilson, & Zak, 1985; Jaffe, Wolfe, Wilson, & Zak, 1986). Further, disruptions in maternal parenting practices have been observed in samples of battered women. For instance, in an observational study of battered women and their 5-year-old children, battered mothers were less responsive to and engaged in more conflict with their children (Holden & Ritchie, 1991). Battered women have also been found to use more both harsh and physical discipline with their children (Criss et al., 2002; Straus, 1991).

The present study expands on the literature on the effects of interparental violence by testing a new model of the effects of interparental violence on children’s internalizing and externalizing problems. This integrative model is presented in figure 1 and hypothesizes an



indirect effect of interparental violence and posits that interparental violence affects children through increases in maternal depression, which, in turn, lead to greater use of maladaptive parenting practices. It is these maladaptive parenting practices which lead to children's internalizing and externalizing problems. Although there have been a small number of studies that have examined indirect models of the effects of interparental violence on children (e. g. Fauber, Forehand, Thomas, & Wierson, 1990; Linares, Heeren, Bronfman, Zuckerman, Augustyn, & Tronick, 2001; McCloskey, Figueredo, and Koss, 1995), the majority of the support for the proposed indirect pathway comes from studies that have examined each link in this model. In the following sections, studies are reviewed that support the connections between interparental violence and maternal depression, between maternal depression and maternal use of maladaptive parenting practices, and between the use of maladaptive parenting practices and children's internalizing and externalizing problems.

Figure 1. Indirect Path Model



Two separate models will be examined, one for internalizing and one for externalizing problems.

### *Interparental Violence and Maternal Depression*

The first link in the hypothesized indirect pathway is the link between interparental violence and maternal depression. Women who are physically assaulted by their partners have evidenced heightened levels of depression, anxiety, and somatic complaints (Jaffe, et al., 1985; Jaffe, et al., 1986). There are also relationships between normal variations of marital conflict and depression. O'Leary, Christian, and Mendell (1994) reported correlations between marital conflict and depression. Although they did not directly measure interparental conflict, Finch, Beach, Harold, and Osborne (1997) found that earlier marital dissatisfaction, likely characterized by conflict, predicted later depression for women.

Maternal depression has evinced consistent relationships with both internalizing and externalizing problems in children (Downey & Coyne, 1990; Kramer, Warner, Olfson, Ebanks, Cahput, & Weissman, 1998; Marchand & Hock, 1998; Rutter & Quinton, 1984; Wright, George, Burke, Gelfand, & Teti, 2000). The effects of maternal depression on children are broad, as maternal depression has also been related to deficits in children's social and adaptive functioning (Lluoma et al., 2001, Seifer et al., 2001). A concern often raised in studies examining the effects of maternal depression on children is that maternal depression may lead to biases in reporting more internalizing and externalizing problems in their children. Researchers, though, have also found elevated levels of internalizing and externalizing problems by teacher report (Wright et al., 2000).

The connection between maternal depression and children's adjustment has been examined as a direct result of witnessing low maternal mood as well as via modeling maternal behavior. In their interactions with their children, mothers who are depressed display a high degree of negative affect (Radke-Yarrow, Nottelman, Belmont, & Welsch, 1993). This negative

affect is an important component in the relationship between maternal depression and children's functioning. This negative affect directly affects children's affect as toddlers have displayed more negative and withdrawn behaviors to scripted presentations of low maternal mood (Seiner & Gelfand, 1995). There is also evidence that parents' views about themselves, the world, and the future (the cognitive triad), may be modeled for the child. In a community sample of children, parent's cognitive triad predicted the cognitive triad of the children, which then predicted children's depression (Stark, Schmidt, & Joiner, 1996).

### *Maternal Depression and Maladaptive Parenting Practices*

Research to date supports that the relationship between parental psychological symptoms and children's functioning is often indirect. For example, Rutter and Quinton (1984) found that children's internalizing and externalizing problems were related more to the sequelae of parental psychopathology than the psychopathology itself. Children's internalizing and externalizing problems were related to the higher degree of hostility, irritability, aggression, and violence in families where one of the parents had a psychiatric disorder. In a review of adoption studies of children of parents with a psychiatric disorder, Maccoby (2000) noted that children of parents with a psychiatric disorder are only more likely to develop a psychiatric disorder themselves when they also experience harsh parenting or other types of dysfunctional family environments. Thus, although there are strong relationships between maternal diagnosis and children's internalizing and externalizing problems, evidence suggests that maternal symptoms affect children through disruptions in the family system, largely characterized by changes in maternal parenting.

The specific focus of the present study is the indirect relationship of maternal depression to children's functioning. Downey and Coyne (1990) paint a picture of the depressed mother as

more hostile and irritable as well as less consistent than well mothers. Depressed mothers are also less responsive to their children than non-depressed mothers (reviewed in Tronick & Gianino, 1986). Further, depressed mothers' interactions with their children are characterized by more hostility and harsh discipline (Nomura et al., 2002). In a sample of children between the ages of 8 and 10, although there was an overall relationship between mother's depression and children's depression and low self-esteem, this relationship was stronger when mothers were also critical and hostile in their interactions with their children (Goodman, Adamson, Riniti, & Cole, 1994). Further support for the relationship between maternal parenting and children's internalizing problems comes from a retrospective study of depressed patients. These depressed adults described their mothers as rejecting, hostile, and as using more control through guilt and hostility (Crook, Raskin, & Eliot, 1981). Further these patients also rated their mothers as low on acceptance, child centeredness, and positive involvement.

#### *Parenting Practices and Children's Internalizing and Externalizing Problems*

The studies reviewed to this point support that interparental violence is related to maternal depression, and that maternal depression is related to maladaptive parenting practices such as harsh discipline, physical discipline, and low warmth. The final link in the hypothesized indirect pathway is from these maladaptive parenting practices to children's internalizing and externalizing problems. Studies to date have found both current and longitudinal relationships between harsh discipline, physical discipline, and low maternal involvement and children's internalizing and externalizing problems (Fauber, Forehand, Thomas, & Wierson, 1990; Nix, Pinderhughes, Dodge, Bates, Pettit, & McFadyen-Ketchum, 1999; Wasserman, Miller, Pinner, & Jaramillo, 1996). It has previously been reviewed that children from homes characterized by interparental violence have deficits in emotion regulation which may lead them to be more

distressed by conflict. Deficits in emotion regulation may also lead these children to be more affected by harsh parenting practices. In a sample of first and second grade children, the relationship between maternal hostility and children's externalizing problems only held for those children with deficits in emotion regulation (Morris, Silk, Steinbert, Sessa, Avenevoli, & Essex, 2002).

Previous research has failed to find a buffering effect of positive parenting practices on the relationship between interparental violence and children's internalizing and externalizing problems (McCloskey et al., 1995). In terms of children's externalizing problems, although Frick, Christian, and Wooten (1999), found a number of relationships between negative parenting practices and children's externalizing problems, none of the associations between positive parenting practices, other than parental involvement, had significant negative correlations with the presence of externalizing problems in children between the ages of 6 and 17-years-old. Thus, the present study focused on the presence of maladaptive parenting practices as they relate to children's internalizing and externalizing problems.

#### *Indirect Pathways of the Effect of Interparental Violence*

The studies reviewed above support the link between interparental violence and maternal depression, between maternal depression and maternal maladaptive parenting practices, and between maternal maladaptive parenting practices and children's internalizing and externalizing problems. No study to date has examined maternal depression and maternal maladaptive parenting practices together as an indirect pathway of the effect of interparental violence. Two studies, though, have examined indirect pathways which each include a portion of the indirect pathway hypothesized by the present study. A third study took a different approach, examining the buffering role of support rather than a mediating role of negative parenting practices.

The first study tested the indirect pathway whereby interparental violence leads to children's internalizing and externalizing problems by way of disrupted parenting. In this study Fauber, Forehand, Thomas, & Wierson (1990) collected data from 46 adolescents from intact families and 51 adolescents from recently divorced families along with the mothers and teachers of each adolescent. Adolescents completed the O'Leary Porter Scale (Porter & O'Leary, 1980) to assess the level of interparental conflict that had occurred in their presence. Parenting practices were assessed with the Child's Report of Parental Behavior (Schludermann & Schludermann, 1970). Internalizing and externalizing problems were assessed by parent and teacher report on the Revised Behavior Problem Checklist (Quay & Peterson, 1983) and child report on the Children's Depression Inventory (Kovacs, 1981). The only direct effect of interparental conflict was from interparental conflict to externalizing problems in the sample of intact families (Fauber et al., 1990). In the divorced sample, the effect of interparental conflict on externalizing problems was mediated by parental rejection and withdrawal. In both the divorced and intact family samples, the effect of interparental conflict on internalizing problems was completely mediated by parental rejection, withdrawal, and psychological control, characterized by the induction of guilt in children to gain compliance (Fauber et al., 1990). Thus, it appears that dysfunctional parenting practices largely explain the relationship between interparental conflict and children's internalizing and externalizing problems. The question that remains is what the process is that leads to disruption in parenting in families where there is conflict.

One possible answer to this question comes from another study that tested maternal psychological distress as a mediator between family aggression, which included both physical and verbal aggression directed both at the marital partner and the child, and childhood internalizing and externalizing problems (Linares, Heeren, Bronfman, Zuckerman, Augustyn, &

Tronick, 2001). These researchers collected data from 160 children between the ages of 3 and 6 and their mothers. The families were primarily low-income and African American. All of the participants resided in a high-crime neighborhood. Interparental and parent-child conflict was measured using the Conflict Tactics Scale-Revised (Straus, 1995). Maternal psychological distress was assessed with both the Diagnostic Interview Schedule PTSD module (Kilpatrick, 1989) and the General Symptom Index of the Symptom Checklist 90-Revised (Derogatis, 1994). Children's internalizing and externalizing problems were assessed by parent report on the Child Behavior Checklist (Achenbach, 1992). The results of this study support a mediational role for maternal distress between family aggression and childhood internalizing and externalizing problems. The researchers tested a structural equation model that examined both a direct relationship between family aggression to children's internalizing and externalizing problems and an indirect relationship between family aggression and children's internalizing and externalizing problems mediated by maternal distress (Linares et al., 2001). There was no direct relationship between family aggression and childhood internalizing and externalizing problems once maternal distress was added to the model (Linares et al., 2001). They found a moderate relationship between family aggression and maternal distress and a large relationship between maternal distress and childhood internalizing and externalizing problems (Linares et al., 2001). Given the likelihood that differing mechanisms were at work for internalizing and externalizing problems, it would have been more informative to have these two types of problems separated.

The third study took a different approach to testing a mediational model of the effect of violence on children (McCloskey, Figueredo, and Koss, 1995). First, they looked at the effect of family aggression, including partner to mother, partner to child, and mother to child aggression. Second, they looked at family support as a buffer rather than negative family characteristics as a



mediator. Lastly, they looked at total children's symptoms, reported by the Child Assessment Schedule as well as the CBCL Total Problem Score as the outcome variable. They examined models separately for mother and child report. They found that family aggression was related to child psychopathology in both the mother and the child models. Although they found a relationship between family aggression and maternal psychopathology, as measured by the total score on the Brief Symptom Inventory (BSI), their results did not support a mediational role for maternal psychopathology in the relationship between family aggression and child psychopathology. Further, they found no evidence for a buffering role for family support, including maternal and paternal support in the child reported model and maternal and sibling support in the mother reported model. They did, though, find a negative relationship between family aggression and family support in the child reported model.

Thus, recent studies support an indirect pathway whereby interparental conflict leads to children's internalizing and externalizing problems through maternal distress and maternal disrupted parenting (Fauber, Forehand, Thomas, & Wierson, 1990 & Linares et al., 2001). What remains, then, is to examine the link between maternal distress and maternal disrupted parenting. This more complete model, which takes into account both maternal depression and maternal parenting practices, will further illustrate the indirect pathway through which conflict affects children's internalizing and externalizing problems. The proposed model suggests that interparental violence has its effect on children through maternal depression, which, in turn, leads to maladaptive parenting practices, including harsh discipline, physical discipline, and low warmth. It is these maladaptive parenting practices which are proposed to lead to children's internalizing and externalizing problems.

### *Hypotheses*

The studies reviewed thus support a relationship between interparental violence and children's internalizing and externalizing problems. Thus, it is expected that the present study will replicate an association between interparental violence and children's internalizing and externalizing problems. The purpose of the present study is to examine an indirect pathway of the effects of interparental violence on children's internalizing and externalizing problems. The structural equation models will test a model of the indirect effects of interparental violence on children whereby interparental violence leads to children's internalizing and externalizing problems through maternal depression and maternal use of maladaptive parenting practices, including low warmth, harsh discipline, and physical discipline. These maladaptive parenting practices are proposed as the final link, directly related to children's internalizing and externalizing problems. Thus, based on the hypothesized model, it was first expected that interparental violence would be strongly related to maternal depression. Further, this maternal depression was expected to be related to maternal use of maladaptive parenting practices. Lastly, these maladaptive parenting practices were expected to be strongly related to children's internalizing and externalizing problems.

The strength of the relationships among these constructs was the first criterion for the support of the indirect pathway hypothesized by the present study. Two other criteria were also required. The first is that the indirect pathway would account for a significant portion of the direct effect of interparental violence on children's internalizing and externalizing problems. The second is that the model would fit equally well with and without a direct path from interparental violence to children's internalizing and externalizing problems. These hypotheses were examined by comparing the fit of the models with and without direct paths from interparental

violence to children's internalizing and externalizing problems and comparing the direct pathways when the indirect pathway was included to the direct pathway between interparental violence and children's internalizing and externalizing problems illustrated by the measurement models.

The present data were drawn from the data used for the study by McCloskey et al. (1995). There are a number of reasons, though, to expect differing results. The first reason is that the present study conceptualized interparental violence as the primary independent variable. McCloskey et al. used family aggression, which also included violence from both the father and the mother to the child. In the present study, maternal harsh and physical discipline were conceptualized as the result of interparental violence as opposed to correlates of interparental violence. Secondly, McCloskey et al. examined a buffering effect of family support where the present study examined a mediating role of maladaptive parenting. Lastly, McCloskey et al. used a global measure of childhood psychopathology, which included constructs such as obsessions, enuresis, encopresis, and schizoid features. The present study used two constructs which have been consistently related to interparental violence, children's internalizing and externalizing problems.

## METHODS

### *Participants*

Data for the present study were drawn from The Women and Family Project (1991-1996). These data were collected by Laura McCloskey and are available through the archive of the Henry A. Murray Research Center at the Institute for Advanced Study, Harvard University, Cambridge, Massachusetts. A total of 365 women and one of their children (aged 6 to 12) were interviewed. After removing those with extensive missing data, the resulting sample was 359 women and one of their children. Sixty-four of these women resided in a battered women's shelter (shelter sample), 100 of these women resided in the community but had experienced violence in the home in the previous year (outreach sample). The remaining 195 women were recruited from the community, through fliers asking for participants for "a study on the family", as a comparison sample.

The mean age of mothers was 31.4 (range=23-45; SD = 4.8) in the shelter sample, 32.3 (range=23-42; SD=4.1) in the outreach sample, and 33.9 (range=16-53; SD =5.6) in the comparison sample. The mean age of the children interviewed for the study was 9.0 (range=6-12; SD = 2), 9.3 (range=6-12; SD = 1.9), and 9.2 (range=5-12; SD = 2.0) in the shelter, outreach, and comparison samples respectively. The sample was fairly evenly split between male and female children in the shelter (32 males, 32 females), outreach (56 males, 44 females), and comparison (94 males, 101 females) samples. The sample was predominantly Caucasian (43.8% of the shelter sample, 53.0% of the outreach sample, and 58.2% of the comparison sample) and Mexican American (34.4% of the shelter sample, 40.0% of the outreach sample, and 30.1% of the comparison sample). The median family income of the mothers in the community sample

(\$1550) was higher than the median family income of the mothers in the shelter (\$981) and the outreach (\$929) samples.

### *Procedure*

Mothers and their children were interviewed simultaneously for 2 to 3 hours by research assistants. They were compensated \$45.00 for their participation in the study. Each child also received a \$5.00 McDonald's gift certificate for their participation. All of the measures described below were administered orally due to concerns about literacy in this population. A variety of measures were administered as part of The Women and Family Project. Only those that will be analyzed in the proposed study are presented here. Detailed information about all of the measures given and the procedures used can be found in McCloskey et al. (1995) and McCloskey and Walker (2000).

### *Measures*

#### Interparental Violence

The level of interparental violence was measured using the both the parent and child report versions of the *Conflict Tactics Scale* (Straus, 1990). The *Conflict Tactics Scale* (CTS) is completed by a partner in a relationship and measures the ways in which conflict is handled. In the child-report version, children report on the behaviors of their parents toward each other. Each mother responded to the questions contained in the CTS to report on abuse she received from her partner at any time during their relationship. Each child reported only on behaviors of their mother's partner towards their mother. The items on both the parent and child form are rated as follows: 0 (never occurred), 1 (once in the past year), 2 (twice in the past year), 3 (3-5 times in the past year), 4 (6-10 in the past year) times, 5 (11-20 times in the past year), and 6 (more than 20 times in the past year). It contains four scales including negotiation, psychological aggression,

physical assault, and sexual coercion (only on parent form) (Straus, 1990). In a review of four studies on the CTS, the alpha reliability for the physical assault scale ranged from .83 to .86 for women reporting on physical abuse by their spouse or partner (Straus, 1990). The alpha reliability for the physical assault scale when children were the raters was .95 (Straus, 1990). As they were studying the effects of destructive marital conflict, McCloskey et al. (1993) removed the negotiation items from the parent report scale and only asked items from the physical assault scale for the child report scale. The physical assault items from both the maternal and child report versions of the CTS will be used in this study. These items are presented in Table 1 along with the internal consistency in this sample for each of these scales.

Table 1. Physical Violence Items for Parent and Child Report

<i>Parent Report</i>
Threw something at you
Pushed, grabbed, or shoved you
Slapped you
Kicked, bit, or hit you with a fist
Hit or tried to hit you with something
Beat you or hit you for a number of minutes
Choked you
Used a knife or fired a gun
Burned you with a cigarette or other hot object
Cronbach's Alpha for scale - .92
<i>Child Report</i>
Yelled at your mother?
Pushed grabbed, or shoved your mother
Slapped your mother
Kicked, bit, or hit your mother
Hit or tried to hit your mother with something
Beat your mother up for several minutes
Choked or tried to kill your mother
Cronbach's Alpha for scale - .92

### Maternal Depression

Maternal Depression was measured with the *Brief Symptom Inventory* (BSI) (Derogatis, 1975). The BSI is a 53-item self-report questionnaire that presents symptoms to which individuals respond how much they were distressed by symptoms on a scale of 0 “not at all” to 4 “extremely”. It is a shortened version of the *Symptom Checklist-90* (SCL-90) derived by selecting items from the SCL-90 with the highest loadings on each factor (Derogatis, 1975). The factors from the SCL-90 correlate between .92 and .99 with the factors from the SCL-90 (Derogatis, 1993). As evidence of the validity of this measure, the total score from the BSI correlated .55 with the total score from the Brief Psychiatric Rating Scale (Morlan & Tan, 1998). Further, the depression scales of the two measures correlated .69 (Morlan & Tan, 1998). The alpha reliability of the scales of the BSI reported by Derogatis (1993) range from .71 to .85. The present study used the 6-item Depression scale to measure maternal depression.

### Child Internalizing and Externalizing Problems

Childhood externalizing and internalizing problems were measured with the *Child Behavior Checklist* (CBCL), a form completed by a parent or caretaker of a child (Achenbach, 1991). Each child behavior is rated as occurring from 0 (Not true) to 2 (Very True or Often True). Achenbach (1991) recommends using raw scores of the CBCL in research. Thus, in the present study, the score on each factor was determined by taking the mean of the items. The CBCL generates two broad-band scales to be used in this study, Internalizing and Externalizing Problems. (Achenbach, 1991). The one week test-retest reliability for these broad band scales range from .82 to .95 (Achenbach, 1991). The Internalizing scale is composed of the Withdrawn, Somatic Complaints and Anxious Depressed subscales, and the Externalizing scale is composed of the Aggressive and Delinquent Behavior subscales. For the purpose of this study, these



subscales were used as indicators of their respective latent constructs of internalizing and externalizing problems.

### Parenting Practices

The hypothesized model proposed a link between maternal depression and maladaptive parenting. The research in the area of maternal depression supports a link between maternal depression and harsh discipline, physical discipline, and low warmth and involvement (Downey & Coyne, 1990; Nomura et al., 2002; Tronick & Gianino, 1986). Thus, the goal was to construct a latent construct of maladaptive parenting that included harsh discipline, physical discipline, and low warmth and involvement. It was possible to construct these three scales from children's report of maternal parenting. The low number of items reported on by mothers allowed only an aggregate measure of positive and negative parenting to be constructed from the items.

The items for the harsh discipline, physical discipline, and low warmth and involvement scales were drawn from two measures, the *Parent Perception Inventory* (Hazzard Christensen, & Margolin, 1983) and the *Conflict Tactics Scale Parent Child Version (CTS-PC)* (Straus, 1990). The *Parent Perception Inventory* asked children how often their mothers performed 18 different behaviors, which they rated on a scale from 1 "never" to 5 "really a lot." Maternal behaviors listed on the *CTS-PC* were rated by children as occurring between 0 "never" to 6 "more than 20 times" in the past year. Items for the mother reported parenting scales came from a version of the *Parental Authority Questionnaire* (Buri, 1991) that was shortened by McCloskey et al. (1995) for their study. *The Parental Authority Questionnaire* asks mothers to report on their own parenting behaviors as occurring between 1 "never" and 5 "most or all of the time." The items for each scale were chosen based on the face validity of each item to measure the five proposed factors, harsh discipline, physical discipline, low warmth and involvement, positive parenting,

and negative parenting. The child model was tested using nested models comparing a one, two, and three factor model. The nested model comparison is presented in table 2 and revealed that the three factor model fit the data best. The items from both the parent and child-reported scales are presented in tables 3 and 4 along with the standardized loadings of each item on its respective factor as well as the internal consistency for each scale.

Table 2. Nested Model Comparison of Child Report of Parenting Scales

Model	$\chi^2$	Model df	p<	CFI	RMSEA	$\Delta\chi^2$	$\Delta$ df	p<
1-factor	567.43	188	.001	.96	.07	--	--	--
2-factor <sup>a</sup>	469.65	187	.001	.97	.06	97.78	1	.001
3-factor	416.09	186	.001	.98	.06	53.56	2	.001

Note: CFI = comparative fit index, RMSEA = root mean square error of approximation,  $\Delta\chi^2$  and  $\Delta$ df indicate changes in model relative to the previous model.

a. 2 factor model combined harsh discipline and physical discipline into a single factor

Table 3. Final Scales for Parenting Child Report With Standardized Factor Loadings

<b>Scales</b>	
<i>Warmth/Involvement (Items followed by an asterisk were reverse coded)</i>	
P1. How often does your mom do things with you that you like?*	.42
P3. How often does your mother hug you or hold you?*	.53
P4. How often does your mother help you with something, like homework, or helping you to do something that is hard for you?*	.44
P5. How often does your mother say nice things about you to other people, like “_____ is a good boy” or “_____ is being nice or did a nice job”?*	.70
P7. How often does your mother tell you she likes what you did or thanks you for doing things?*	.64
P8. When you are upset about something, how often do you talk with your mother about things that bother you or about your problems?*	.53
P9. How often does your mother ignore you, not answer to you when you ask a question, or not look at you when you’re talking?	.33
P10. How often do you and your mother laugh about things together and make jokes?*	.34
P15. When your family is going somewhere, or your mother is taking you somewhere, how often does your mother explain why you’re all going somewhere?*	.41
P17. How much do you think your mother loves you?*	.34
Cronbach’s Alpha for Scale - .71	
<i>Harsh Discipline</i>	
P6. When you are crying and upset, how often does your mother just tell you to stop crying and doesn’t want you to cry anymore and thinks you’re being silly?	.34
P11. How much does your mother tell you you’re doing things wrong?	.40
P12. How much does your mother yell at you when you’ve made a mistake?	.60
P14. How often does your mother tell you you’re stupid or a bad child?	.49
PC37. How often does your mother insult or swear at any of you (target or sibs)?	.50
PC45. How much of the time do you think your mother yells at you or hurts you just because she’s angry and in a bad mood?	.46
Cronbach’s Alpha for Scale - .59	
<i>Physical Discipline</i>	
<i>How often your mother does any of the following things to you or to your brothers or sisters...</i>	
PC38. Pushes, grabs, or shoves any of you	.63
PC39. Slapped or spanked you or sibs	.57
PC40. Kicked or hit you or your sibs with a fist	.44
PC41. Hit you or your sibs with an object like belt, hairbrush, electrical cord, etc.	.64
PC42. Ever burned you or your sibs with something hot (like an iron, cigarette, or really hot water)	.21
Cronbach’s Alpha for Scale - .62	

P=“Items from modified Parent Perception Questionnaire”

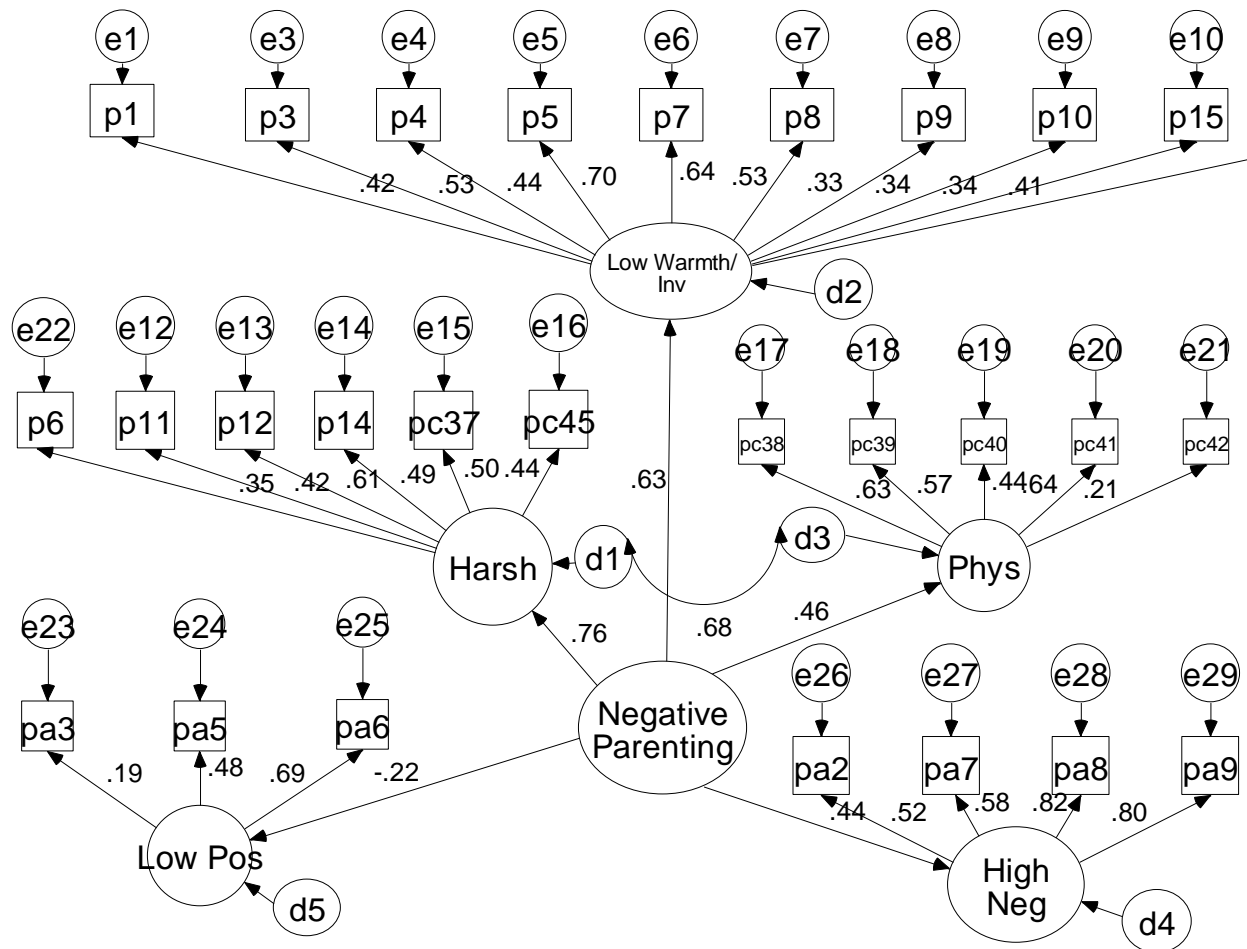
PC=“Items from modified Parent Child Conflict Tactics Scale”

Table 4. Final Scale for Parenting - Parent Report with Standardized Loadings

Scale	
<i>Negative Parenting</i>	
PA2. How often do you have to point out your child's mistakes to him/her?	.51
PA7. How much of the time do you have to get angry or yell at your children to get them to do things?	.57
PA8. How often do you find it difficult to control ____, that it's hard to get him to do what s/he's supposed to do?	.84
PA9. How much of the time are you frustrated with ____ in general?	.79
Cronbach's Alpha for Scale - .77	
<i>Low Warmth/Involvement (All items reverse coded)</i>	
PA3. How often do you try to explain to ____ why s/he can't do something when s/he wants to do something that you don't think is a good idea?	.22
PA5. If you think you've made a mistake with your children, like being too strict or harsh with them, how much of the time do you discuss this with them and admit if you think you've made a mistake?	.55
PA6. How often do you talk to your child about why certain things are happening, either in the family or in someone else's family.	.60
Cronbach's Alpha for Scale - .43	

As items were chosen based on face validity, initial analyses were conducted to confirm that the items chosen fit the data well as a single maladaptive parenting factor. A higher order model was constructed in which a single parenting latent variable loaded on Low Warmth and Involvement, Harsh Discipline, Physical Discipline, Low Positive Parenting, and High Negative Parenting. In order to prevent an improper solution, the disturbance terms for Harsh Discipline and Physical Discipline were allowed to correlate. Given the high correlation (.75) between these factors, it is not surprising that their disturbance terms were correlated. The initial model is presented in Figure 2. Although this model fit the data well ( $\chi^2$  630.07, 344 df, CFI=.98, RMSEA=.05), the Low Positive Parenting factor did not load strongly on the Parenting Factor. This indicated that a low amount of positive parenting was not strongly related to the presence of maladaptive parenting practices. The model was tested again, without this latent variable. This model fit the data equally well ( $\chi^2$  528.37, 270 df, CFI=.98, RMSEA=.05). The final model of maternal maladaptive parenting is presented in Figure 3. Given the excellent fit of this model, the maladaptive parenting factor used for subsequent analyses consisted of the four factors in this final model, harsh discipline, physical discipline, low warmth and involvement, and negative parenting.

Figure 2. Higher Order Model of Parent and Child Report of Parenting

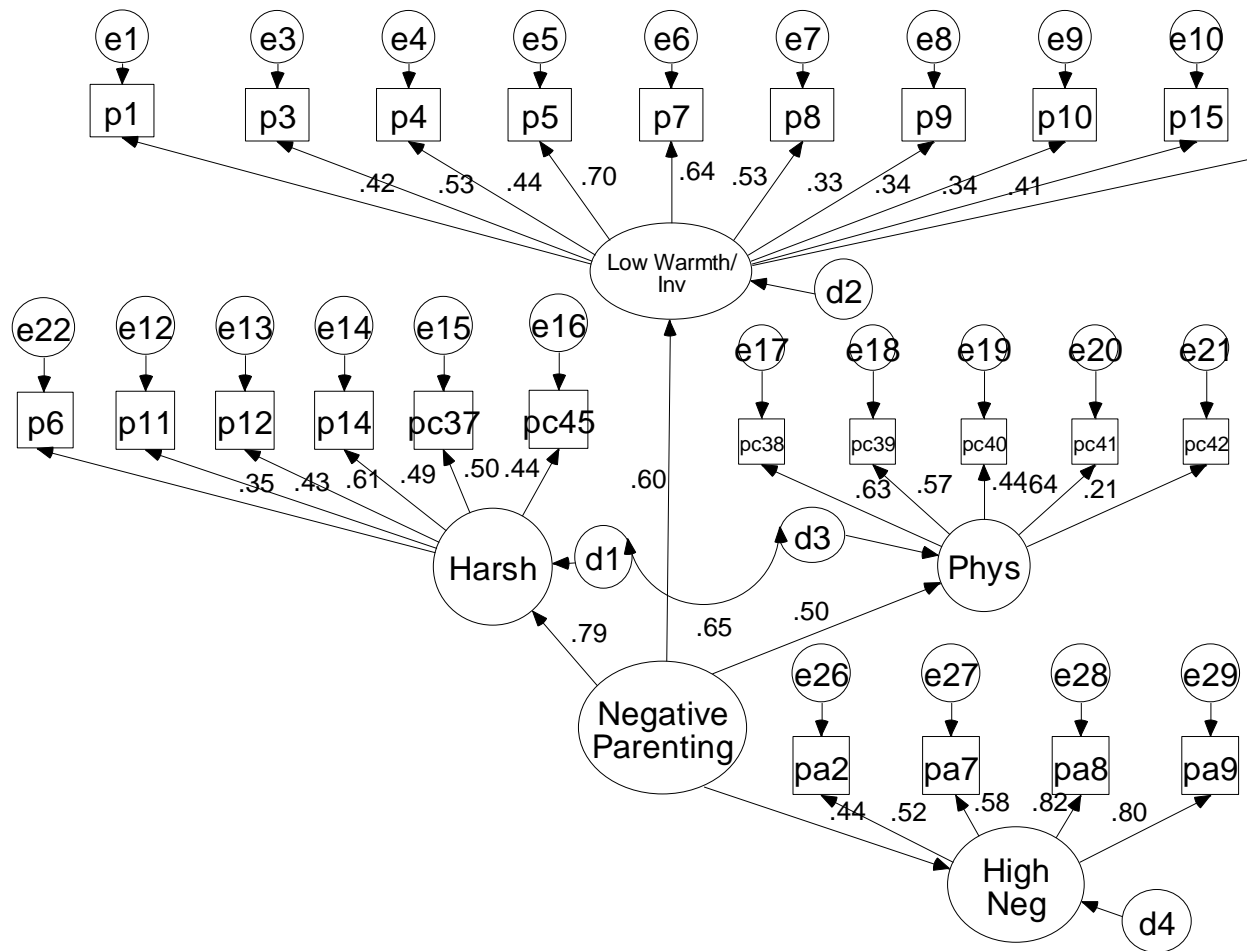


Chi-square 630.07 degrees of freedom 344  $p < .001$

Comparative Fit Index (CFI) .98

Root Mean Square Error of Approximation (RMSEA) .05

Figure 3. Revised Higher Order Model



Chi-square 528.37 degrees of freedom 270  $p < .001$

Comparative Fit Index (CFI) .98

Root Mean Square Error of Approximation (RMSEA) .05



### *Data Analysis*

Preliminary analyses were conducted to assess whether it was appropriate to combine the data from the three samples (shelter, outreach, and community) to test the hypothesized model. These analyses assessed whether there were differences between the samples in terms of agreement between raters (mother and child) of interparental violence. Further, these analyses assessed if the relationships among predictor variables as well as between predictor and outcome variables were similar across groups. The initial data analysis plan was to run correlations with all of the predictor and outcome variables separately for the three samples to see if it was appropriate to combine the samples to test the measurement model. Given the similarities between the shelter and outreach groups (presented below), these two battered groups were combined and the correlations were run separately only for the battered and nonbattered groups.

The fit of both the measurement and structural models were assessed by the chi-square statistic, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). A significant chi-square statistic was the first criteria for adequate fit of the model (Byrne, 1994). This statistic tests the hypothesis that the covariance matrix reproduced from the proposed model is equal to the original population covariance matrix (Stevens, 1996). Thus a non-significant chi-square indicates that the model is an adequate representation of the relationships among the variables. As samples get larger, though, even slight deviations can lead to a significant chi-square, thus additional indices of model fit are recommended (Loehlin, 1992; Stevens, 1996; Tanaka, 1993). It is for this reason that fit indices, such as the comparative fit index (CFI) and the root mean square error of approximation (RMSEA,) were developed to consider the relative fit of models (Tanaka, 1993). Given the presence of both battered and nonbattered women in the sample, it was expected that interparental violence and its correlates

(maladaptive parenting, maternal depression, and children's internalizing and externalizing problems) would be skewed in this sample. Thus, the CFI represented a particularly advisable fit statistic, as it is only slightly underestimated when data depart from normality (West, Finch, & Curran, 1995). The comparative fit index (CFI) ranges from 0 to 1, with 0 indicating variation with no relation to the proposed factors and 1 indicating a perfect fit. In general .90-.95 is considered good and .95 and above is considered excellent (Bentler, 1992; Kline, 1998). The RMSEA denotes a perfect fit with 0, with values less than .05 considered excellent, and those between .05 and .08 considered to be a good fit to the data (Browne & Cudeck, 1993).

The measurement models were composed of three intercorrelated latent variables, interparental violence, maladaptive parenting, and children's internalizing and externalizing problems. The measurement model was tested separately for internalizing and externalizing problems. As maternal depression was assessed by a single observed variable, the Depression scale from the BSI, it could not be included in the measurement model. Estimation of the correlation of this factor with all of the other latent variables in the model would have resulted in an under-identified model. Once fit of the measurement models was deemed adequate. The structural models, testing the relationships among the latent variables, were examined.

The structural models were tested separately for children's internalizing and externalizing problems. The indirect pathway examined by the structural models was from interparental violence to maternal depression, from maternal depression to maternal use of maladaptive parenting practices, and from maternal use of maladaptive parenting practices to children's internalizing and externalizing problems. In order to examine the strength of the indirect pathways, each of the models was then fit to the data with a direct path from interparental violence to children's internalizing and externalizing problems. The strength of the indirect

pathway was examined in two ways. First, using chi-square difference tests, the fit of the models with and without the direct path were compared. If the fit of the model did not significantly improve, it could be asserted that the indirect pathway is what drove the model. Second, the strength of the direct path in the complete model was compared to the correlation between interparental violence and children's internalizing and externalizing problems from the measurement model. The degree to which this relationship was reduced with the inclusion of the indirect pathway indicates the strength of this pathway in predicting children's internalizing and externalizing problems. Once the models were evaluated for the entire sample, they were fit to the data separately for the battered and nonbattered groups to ensure that the results were not primarily driven by data from the battered group.

## RESULTS

### *Descriptive Statistics and Preliminary Group Comparisons*

A preliminary set of analyses was conducted to examine potential differences between the three groups (Shelter, Community Outreach, and Control) in terms of maternal and child report of interparental violence. The means and standard deviations of maternal and child report of interparental violence are presented in Table 5. Two univariate Analyses of Variance (ANOVAs) were performed with child report of interparental violence and maternal report of interparental violence entered as dependent variables, and group status entered as the independent variable. The overall F was significant for child reported ( $F(2, 357)=52.14, p<.001$ ) and mother reported interparental violence ( $F(2, 357)=94.56, p<.001$ ). Bonferoni post hoc tests were performed to test the pairwise comparisons between groups. These post hoc tests revealed that both of the battered groups (Shelter and Community) differed significantly from the control group but not from each other in levels of interparental violence reported by both mothers and their children. Given that the primary variable of interest was the level of interparental violence, and given that these two groups were not significantly different from each other, all subsequent comparative analyses treated the sample as two groups, battered and non-battered.

Table 5. Means and Standard Deviations for Maternal and Child Report of Violence

	Maternal Report of Violence	Child Report of Violence
Shelter	2.48 (1.39)*	2.14 (1.61)*
Outreach	2.50 (1.43)*	1.66 (1.71)*
Community	.67 (1.11)	.44 (.96)

Note: Possible ranges for maternal and child report of violence is 0 to 6.

\* Indicates a significant difference from the Community Group. The Shelter and Outreach groups were not significantly different from each other on maternal or child report of violence.

The next set of analyses compared the battered and nonbattered groups in terms of all of the indicators that would subsequently be entered into the structural equation models. All of the CBCL scales were computed by taking a mean of the items on that scale, so the range of possible scores on each scale was 0 to 2. The range of possible scores for low warmth and involvement and negative parenting was 1 to 5. The range of possible scores for physical discipline was 0 to 6. The range of possible scores for maternal depression is 0 to 4. As the harsh discipline scale contained items from different measures that were on different metrics, all items were standardized (z-transformation) prior to computing the mean. The means and standard deviations for each of these scales are presented in Table 6 separately for the battered and nonbattered groups. Further, this table presents significant differences, where they existed, between the two groups. Interestingly, there were no differences between the two groups on either children's report of harsh discipline or mothers' report of negative parenting. Maternal depression as well as all of the scales from the CBCL were significantly more elevated in the battered than in the non-battered group. Interestingly, the nonbattered women were lower in warmth and involvement and used more physical discipline with their children than the battered women.

Table 6. Descriptive Statistics

	Battered Group		Nonbattered Group		p< <sup>b</sup>
	Mean	Standard Deviation	Mean	Standard Deviation	
Harsh Discipline	-.01	.56	.00	.60	ns
Physical Discipline	.76	.82	.98	.92	.05
Low Warmth	1.89	.51	2.02	.60	.05
Negative Parenting	3.00	.80	2.96	.75	ns
Somatic Complaints CBCL Scale	.26	.29	.18	.22	.01
Anxious/Depressed CBCL Scale	.59	.39	.42	.35	.001
Withdrawn CBCL Scale	.49	.33	.36	.26	.001
Aggressive Behavior CBCL Scale	.59	.36	.46	.34	.001
Delinquent Behavior CBCL Scale	.23	.21	.15	.15	.001
Maternal Depression	1.34	.98	.72	.81	.001

a. The items comprising this scale were standardized before they were averaged as the items comprising the scale are on different metrics

b. p value indicates the statistical significance of the difference between battered and nonbattered groups

Next, the nonbattered and battered groups were compared in terms of the correlations among predictor and outcome variables. The correlations among maternal and child report of interparental violence, maternal depression, child report of maternal harsh discipline, child report of maternal physical discipline, child report of low maternal warmth, maternal report of negative parenting, and the components of children's internalizing (somatic complaints, withdrawn, and anxiety/depression) and externalizing (delinquent and aggressive behavior) problems are presented in Table 7. The results indicated that maternal and child report of interparental violence were relatively concordant, correlating .38 in the battered group and .54 in the nonbattered group.

Maladaptive parenting practices were more strongly related to interparental violence in the nonbattered than in the battered group. Physical Discipline was correlated with both child and maternal report of interparental violence for the nonbattered group but not for the battered group. Harsh Discipline was correlated with child report of interparental violence in both groups, but the correlation with maternal report of interparental violence was only significant in the nonbattered group. Maternal report of negative parenting was correlated with both maternal and child report of interparental violence in the nonbattered group but only with maternal report of interparental violence in the battered group.



Table 7. Correlations Among Predictor Variables for Battered and Nonbattered Groups

	1	2	3	4	5	6	7	8	9	10	11
<b>Battered</b>											
1. Violence Child Report											
2. Violence Mom Report	.38**										
3. Maternal Depression	.04	.29**									
4. Maternal Low Warmth	.00	.05	-.05								
5. Maternal Physical Discipline	.12	.10	-.01	.17*							
6. Maternal Harsh Discipline	.27**	.05	.03	.28**	.34**						
7. Maternal Negative Parenting	.09	.18*	.25**	.19*	.17*	.25**					
8. Delinquent Beh. CBCL Scale	.09	.09	.13	.03	.05	.05	.48**				
9. Aggressive Beh. CBCL Scale	.12	.11	.20*	.07	.08	.16*	.66**	.67**			
10. Withdrawn CBCL Scale	-.01	.14	.18*	.12	.05	.03	.27**	.34**	.45**		
11. Anxious/Depress. CBCL Scale	.02	.12	.23**	.05	.05	.05	.45**	.46**	.64**	.67**	
12. Somatic Compl. CBCL Scale	-.08	.08	.19*	.00	-.06	-.09	.24**	.25**	.30**	.48**	.52**
<b>Nonbattered</b>											
1. Violence Child Report											
2. Violence Mom Report	.54**										
3. Maternal Depression	.29**	.38**									
4. Maternal Low Warmth	.12	.08	.08								
5. Maternal Physical Discipline	.18**	.18*	.06	.16*							
6. Maternal Harsh Discipline	.20**	.21**	.11	.33**	.53**						
7. Maternal Negative Parenting	.16*	.22**	.30**	.15*	.22**	.29**					
8. Delinquent Beh. CBCL Scale	.19**	.23**	.26**	.13	.18*	.28**	.44**				
9. Aggressive Beh. CBCL Scale	.18*	.23**	.38**	.18*	.18*	.21**	.58**	.57**			
10. Withdrawn CBCL Scale	.06	.14	.33**	.18*	.16*	.21**	.39**	.29**	.48**		
11. Anxious/Depress. CBCL Scale	.14	.20**	.43**	.16*	.22**	.22**	.48**	.34**	.67**	.64**	
12. Somatic Compl. CBCL Scale	.02	.15*	.25**	.16*	.17*	.23**	.31**	.21**	.34**	.35**	.46**

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Group differences also emerged in the relationship between child and maternal reports of interparental violence and maternal depression. Both mothers' and children's reports of interparental violence were correlated with maternal depression in the nonbattered group, but only mother's report of interparental violence was correlated with maternal depression in the battered group. This does not negate a relationship between interparental violence and maternal depression as the between groups comparisons established that battered women reported significantly higher levels of depression than nonbattered women.

The difference in the relationship of interparental violence and the CBCL scales was the most striking difference. There were no significant correlations for either maternal or child report of interparental violence and any of the CBCL scales for the battered group. In the non-battered group children's report of interparental violence correlated significantly with aggressive and delinquent behavior. Further, maternal report of interparental violence correlated significantly with aggressive behavior, delinquent behavior, somatic complaints, anxiety, and depression in children. Again, this does not rule out an effect of interparental violence on children's internalizing and externalizing problems, as the children of battered women were significantly more elevated on all of the CBCL scales.

#### *Distribution of Interparental Violence*

It was expected that the majority of battered women would report high levels of interparental violence, and that the majority of nonbattered women would report little or no interparental violence. Thus, combining these two distributions of interparental violence was expected to lead to a normal distribution of interparental violence in the entire sample. Before proceeding to test the measurement models, the distribution of interparental violence was examined for the sample as a whole and separately for the battered and nonbattered groups.

Graphical representations of the distribution for child reported interparental violence for the whole sample, for the battered group, and for the nonbattered group are presented in Appendix A. Children's reports of interparental violence were skewed for all groups. The most positively skewed distribution was in the child's reports of interparental violence in the nonbattered group (Skewness 3.21). The closest approximation to normality for child reported interparental violence was in the battered group (Skewness .86). The distribution when the entire sample was combined was a closer approximation to normality than when the nonbattered groups were analyzed alone, but not as normally distributed as in the battered group (Skewness 1.58).

The distribution of maternal reports of interparental violence are presented in Appendix B. The same pattern of results emerged, with the most normal distribution of interparental violence occurring in the battered group. Again, the most skewed distribution of interparental violence was in the nonbattered group, and the distribution of scores for the combined sample was closer to normality than the nonbattered group, but not as close to normality as the battered group alone. Given both the differences in the spread of scores and the differences in the relationships between the predictor and outcome variables revealed by the correlations, subsequent analyses were conducted with the whole sample as well as separately for the battered and nonbattered groups. This ensured that the results of the present study were not primarily driven by the data from the battered group.

### *Measurement Models*

The measurement models were tested using maximum likelihood estimation in Amos 4.1 (Arbuckle, 1999). Graphical representations of the measurement models for children's internalizing problems are presented in Appendix C. The initial measurement model included interparental violence, maladaptive parenting, and internalizing problems. As its inclusion would

produce an underidentified model, maternal depression was not included in any of the measurement models. The interparental violence latent variable loaded on mother and child report of physical violence from the CTS. Maladaptive parenting loaded on child reported harsh parenting, child reported low warmth and involvement, child reported physical discipline, and mother reported negative parenting. The internalizing problems latent variable loaded on the anxious/depressed, withdrawn, and somatic complaints scales from the CBCL. The chi-square for the model was significant ( $\chi^2$  94.81, 24 df,  $p < .001$ ), but in large samples the chi-square is often significant even in well-fitting models. The CFI of .90 suggested a good fit to the data, and the RMSEA of .09 indicated that the model approached an adequate fit to the data.

Analysis of the modification indices revealed one empirically derived and theoretically sound modification to the model. The modification indices indicated that correlating the error terms associated with harsh and physical parenting would significantly improve the model. Loehlin (1992) stated that error terms are often correlated when there is a relationship between indicators beyond their participation in a common factor. The pattern of results was similar to the higher order model of parenting presented in Figure 1, in which the disturbance terms for these two factors were correlated. It was surmised that these two indicators have a relationship beyond their common loading on the same maladaptive parenting latent variable. These two indicators also have in common that they both contain items that are more extreme, verging on verbal and physical abuse. The fit of the model was appreciably improved when these errors were allowed to correlate. The CFI of .96 and RMSEA of .06 indicated a good fit of the model to the data.

This modified measurement model for children's internalizing problems was then fit to the data in both the nonbattered and battered groups separately. Graphical depictions of these two measurement models are presented in Appendix C. The fit of the model was excellent for the

nonbattered group, as indicated by a nonsignificant chi-square ( $\chi^2$  26.58, df 23), a CFI of .99, and an RMSEA of .03. Although the model did not fit the data quite as well for the battered group, as indicated by both a significant chi square ( $\chi^2$  42.91, df 23,  $p < .01$ ) and slightly poorer fit indices (CFI .92; RMSEA .07), it was an adequate fit to the data.

The measurement model for children's externalizing problems was then fit to the data for the entire sample. Graphical depictions of the measurement models for children's externalizing problems are presented in Appendix D. As the previous analyses indicated that the error terms for harsh parenting and physical discipline were correlated, these error terms were allowed to correlate in the initial model. The fit of this model was similar to fit of the model for internalizing problems. Although the chi-square was again significant ( $\chi^2$  47.56, df 16,  $p < .001$ ), the CFI of .95 and RMSEA of .07 indicate a good fit of the model to the data.

The externalizing model was then fit to the data for the nonbattered and battered groups separately. Graphical depictions of these two measurement models are presented in Appendix D. The fit of the measurement models was similar for the nonbattered ( $\chi^2$  27.12, df 16;  $p < .05$ ; CFI .97; RMSEA .06) and battered ( $\chi^2$  30.37, df 17  $p < .05$ ; CFI .95; RMSEA .07) groups. The overall conclusion reached by examination of the measurement models is that there appeared to be no major model misspecifications or unidentified cross-loadings in these models. As the measurement models including both internalizing and externalizing problems fit the data well, the next step in the analyses was to test the structural models, examining the hypothesized indirect pathway of the effect of interparental violence on children's internalizing and externalizing problems.

### *Structural Models*

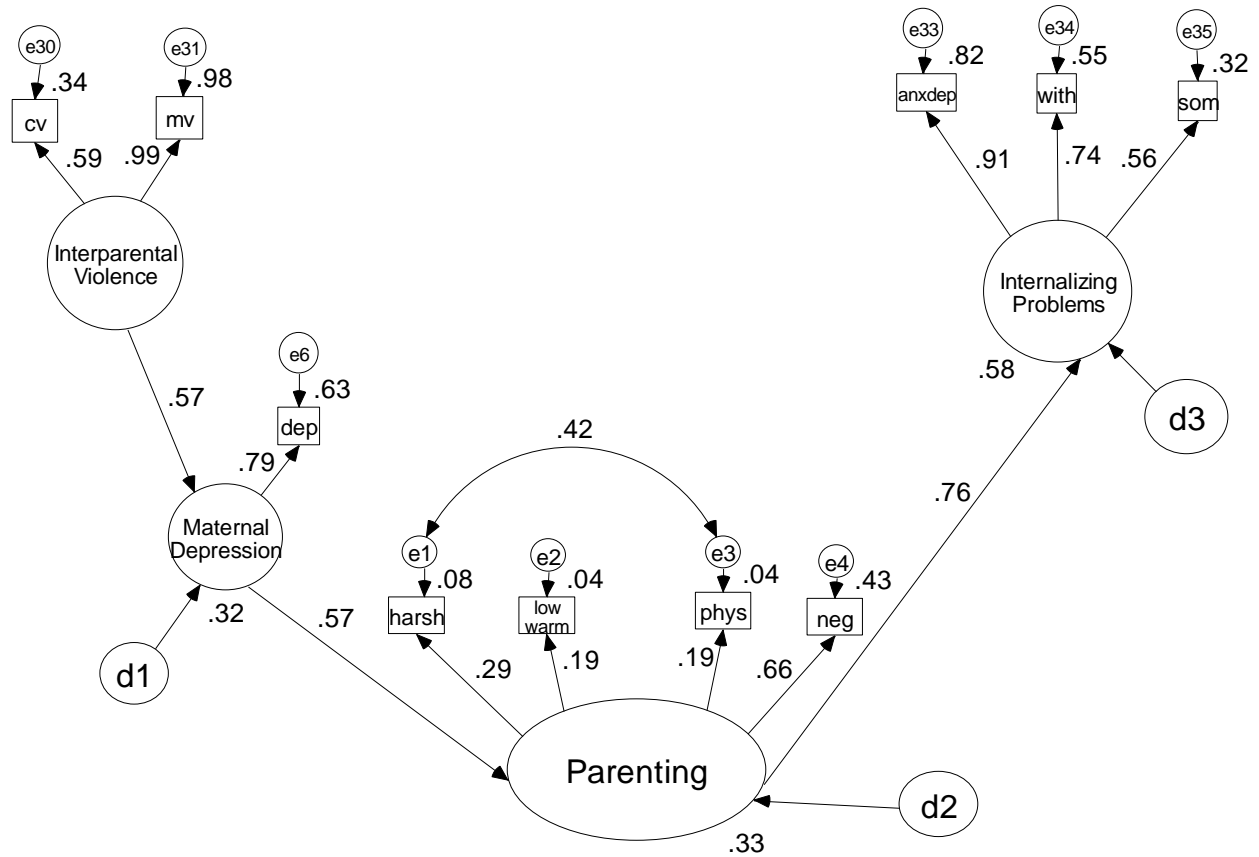
For a number of the subsequent models, it was necessary to fix either one or two error variances to zero in order to prevent an improper solution. Chen, Bollen, Paxton, Curran, and Kirby (2001) conducted a Monte Carlo study of improper solutions in structural equation models and suggested possible causes and solutions. They found that there is not a significant relationship between misspecified models (models with omitted paths) and the occurrence of improper solutions (largely negative error variances). Their review indicated that these solutions are more likely when there are less than two indicators for a factor. Further, they indicated that these solutions are more likely when the actual error variance is close to zero. Thus, they often result when the indicator is a nearly perfect indicator of the latent variable. Chen et al. (2001) recommend fixing the variance to zero in order to obtain an admissible solution. They contend that this will produce a relatively unbiased result when two conditions are met, first, that the model converged without the variance fixed, and second, that the confidence interval for the error variance includes zero. For all of the subsequent cases in which a variance was set to zero these two conditions were met, the model converged without fixing the variance, and the confidence interval for the error variance included zero.

### *Models of the Effects of Interparental Violence on Children's Internalizing Problems*

The indirect path model for internalizing problems is presented in Figure 4. Although the chi-square for the model was statistically significant, the fit indices indicated a good fit of the model to the data for the entire sample (CFI .95, RMSEA .06). All of the structural paths were significant at the .01 level and are presented in the figure as standardized path coefficients. An examination of these paths revealed a strong relationship between interparental violence and maternal depression (.57), between maternal depression and maladaptive parenting (.57), and an

even stronger relationship between maladaptive parenting and children's internalizing problems (.76). Although the indirect path model fit the data well, in order to examine the strength of this indirect pathway, it was necessary to compare it to a model with a direct path from interparental violence to internalizing problems (Figure 5).

Figure 4. Structural Model – Internalizing Problems



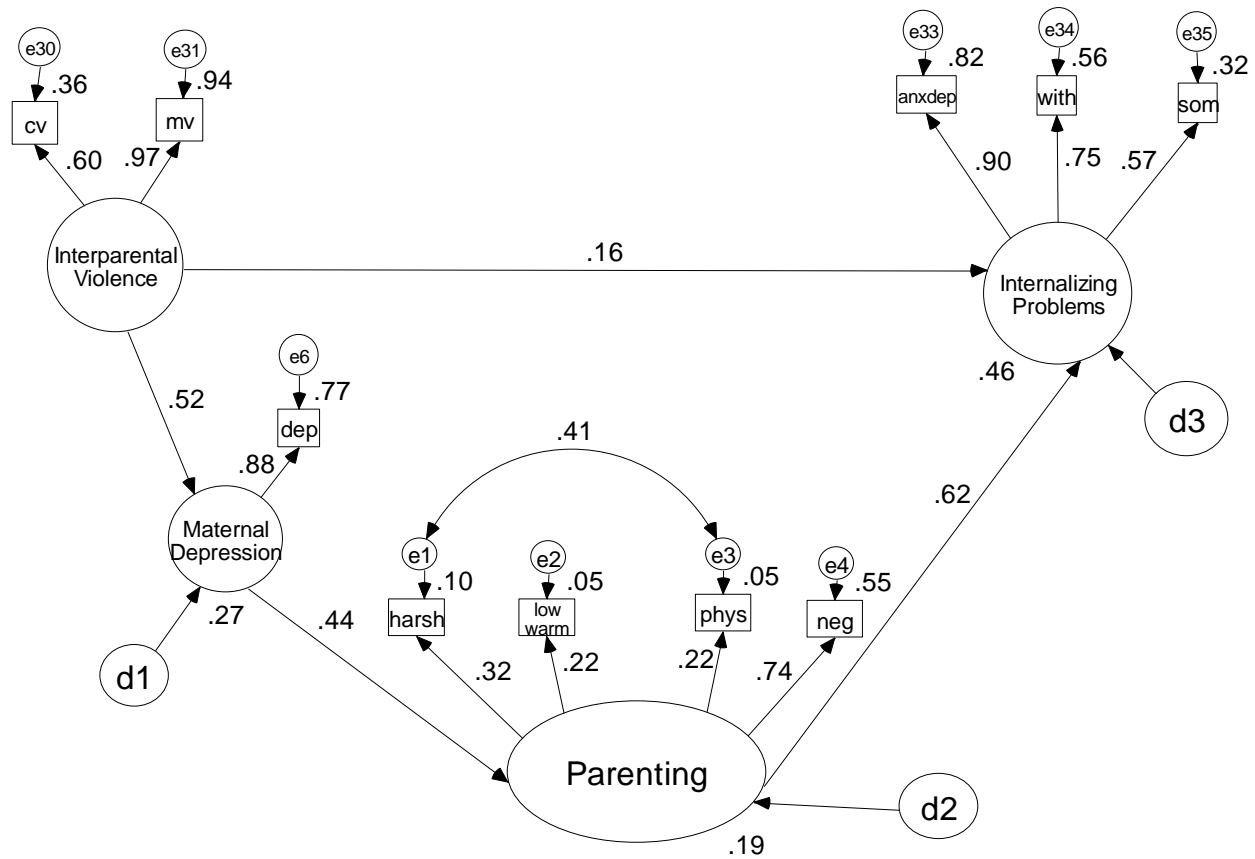
Chi-square 76.21 degrees of freedom 31  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .06



Figure 5. Structural Model – Internalizing Model with Direct and Indirect Paths



Chi-square 70.56 degrees of freedom 30  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .06

The direct path from interparental violence to children's internalizing problems was small (.16) but statistically significant. Although the chi-square difference test (Table 8) indicated a statistically significant improvement in model fit with the addition of the direct path from interparental violence to children's internalizing problems, neither the CFI nor the RMSEA changed with the inclusion of this direct path. Further the direct path from interparental violence to children's internalizing problems (.16) was greatly reduced from the correlation between interparental violence and children's internalizing problems (.31) revealed by the measurement model. Thus, nearly half of the relationship between interparental violence and children's internalizing problems was accounted for by the indirect pathway.

Table 8. Model Comparison of Internalizing Models with and Without Direct Path from Interparental Violence

Model	$\chi^2$	Model df	p<	CFI	RMSEA	$\Delta\chi^2$	$\Delta$ df	p<
<b>Entire Sample</b>								
Model a	76.21	31	.001	.95	.06	--	--	--
Model b	70.56	30	.001	.95	.06	5.65	1	.05
<b>Nonbattered Group</b>								
Model a	39.58	23	.14	.98	.04	--	--	--
Model b	37.07	22	.18	.98	.03	2.51	1	ns
<b>Battered Group</b>								
Model a	49.79	32	<.05	.94	.06	--	--	--
Model b	49.55	31	<.05	.93	.06	.24	1	ns

Model a – No direct path from interparental violence to children’s internalizing problems

Model b – Model including path from interparental violence to children’s internalizing problems

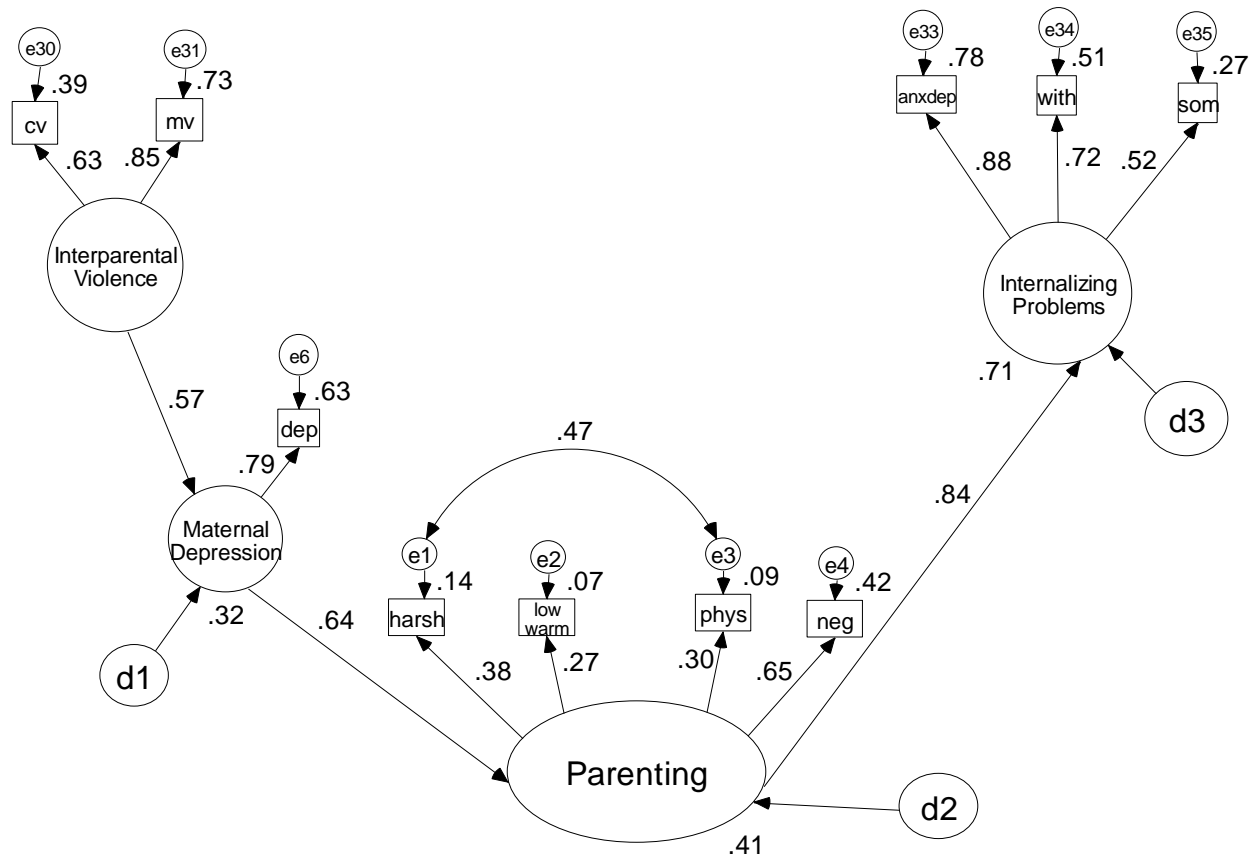
Note: CFI = comparative fit index, RMSEA = root mean square error of approximation,  $\Delta\chi^2$  and

$\Delta$ df indicate changes in model relative to the previous model.

The indirect path model was then tested separately for the nonbattered group (Figure 6). The model fit the data well as indicated both by a nonsignificant chi-square and an examination of the fit indices (CFI .98; RMSEA .04). The path coefficients illustrate a similar pattern of results as when the model was fit for the entire sample. There were relatively strong relationships between interparental violence and maternal depression (.57), between maternal depression and maladaptive parenting (.64), and an even stronger relationship between maladaptive parenting and children's internalizing problems (.84).

There was an interesting pattern of results when the internalizing model was fit for the nonbattered group with a direct path from interparental violence to children's internalizing problems (Figure 7). The chi-square difference test indicated no significant improvement in the fit of the model with the addition of this direct path (Table 8). Further the CFI remained unchanged, and there was only a slight change (.01) in the RMSEA with the addition of the direct path. The interesting finding was that the path between interparental violence and children's internalizing problems, although not significant, was moderate and negative (-.24). This is indicative of a suppressor effect, whereby the variance in internalizing problems not accounted for by the indirect path is negatively related to interparental violence. Thus, the evidence supports that the relationship between interparental violence and children's internalizing problems revealed by the measurement model (.26) is entirely accounted for by the indirect pathway through maternal depression.

Figure 6. Structural Model – Internalizing Problems for Nonbattered Women Only

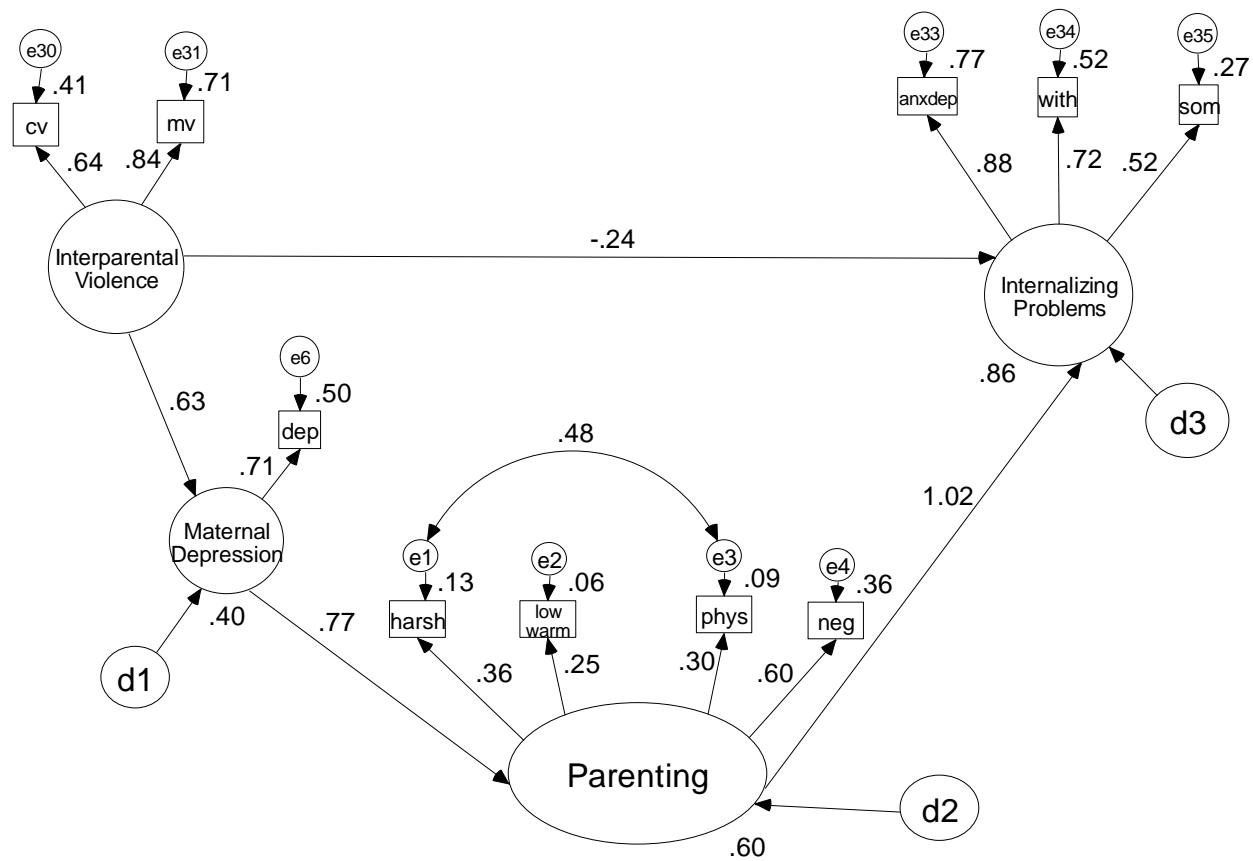


Chi-square 39.58 degrees of freedom 31  $p=.14$  (not significant)

Comparative Fit Index (CFI) .98

Root Mean Square Error of Approximation (RMSEA) .04

Figure 7. Structural Model for Internalizing Problems with Direct Path from Interparental Violence for Nonbattered Women Only



Chi-square 37.07 degrees of freedom 30  $p=.18$  (not significant)

Comparative Fit Index (CFI) .98

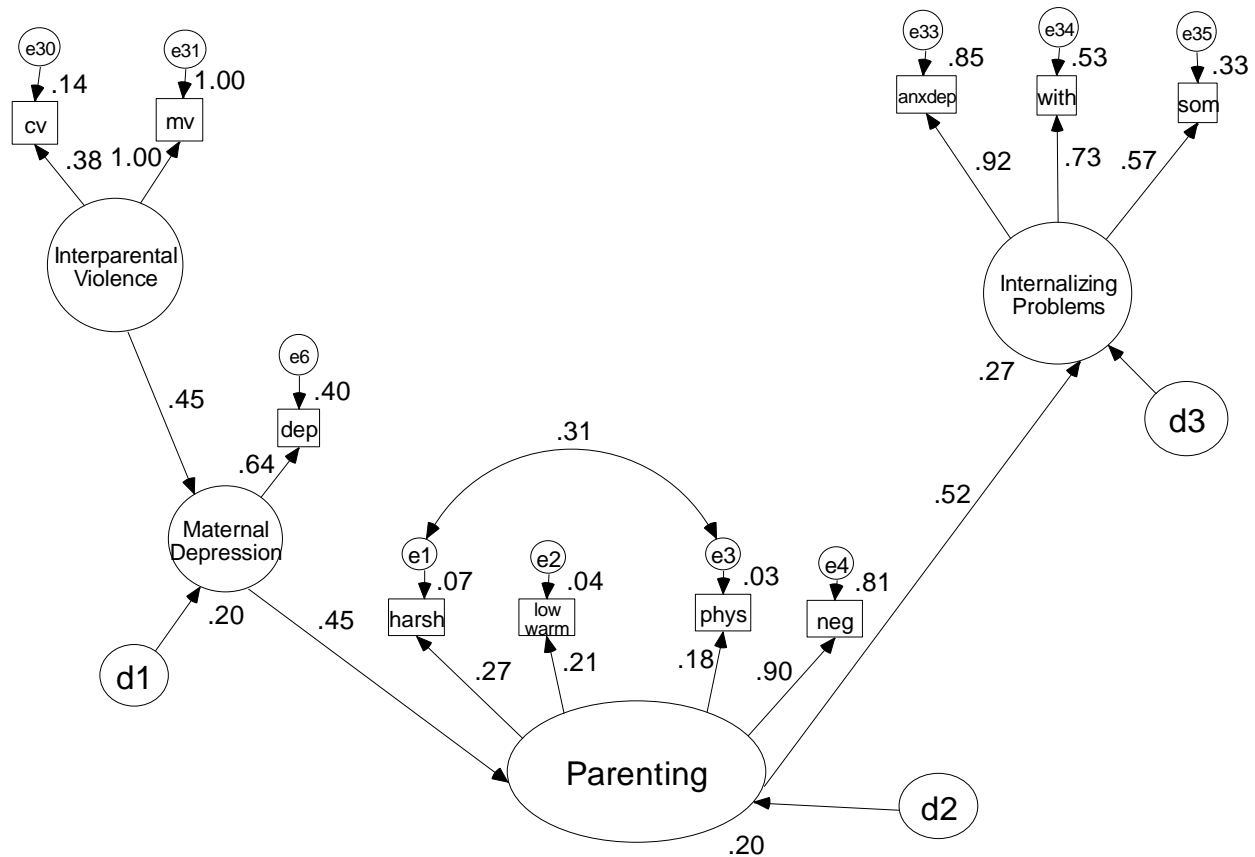
Root Mean Square Error of Approximation (RMSEA) .03

The path from Interparental Violence to Children's Internalizing Problems was not statistically significant ( $p=.13$ ).

The indirect path model for children's internalizing problems fit the data well in the battered sample as well (CFI .94; RMSEA .06) (Figure 8). The path coefficients illustrated a similar pattern of results as when the model was fit in the nonbattered group. There were relatively strong relationships between interparental violence and maternal depression (.45), between maternal depression and maladaptive parenting (.45), and between maladaptive parenting and children's internalizing problems (.52). The path from maternal depression to maladaptive parenting approached significance ( $p=.09$ ) in this group. As the pattern of results was otherwise similar, this is likely due to a smaller sample size in this group.

The model with a direct path from interparental violence to children's internalizing problems is presented in Figure 9. This direct path was both small (.04) and not statistically significant. The chi-square difference test between the two models indicated that there was not a significant improvement in fit with the addition of the direct path from interparental violence to children's internalizing problems (Table 8). Further, a comparison of this direct path and the direct path from the measurement model (.14) indicated that the majority of the relationship between interparental violence and children's internalizing problems was accounted for by the indirect pathway through maternal depression and maternal maladaptive parenting practices.

Figure 8. Internalizing Model – Battered Women Only



Chi-square 49.79 degrees of freedom 32  $p < .05$

Comparative Fit Index (CFI) .94

Root Mean Square Error of Approximation (RMSEA) .06

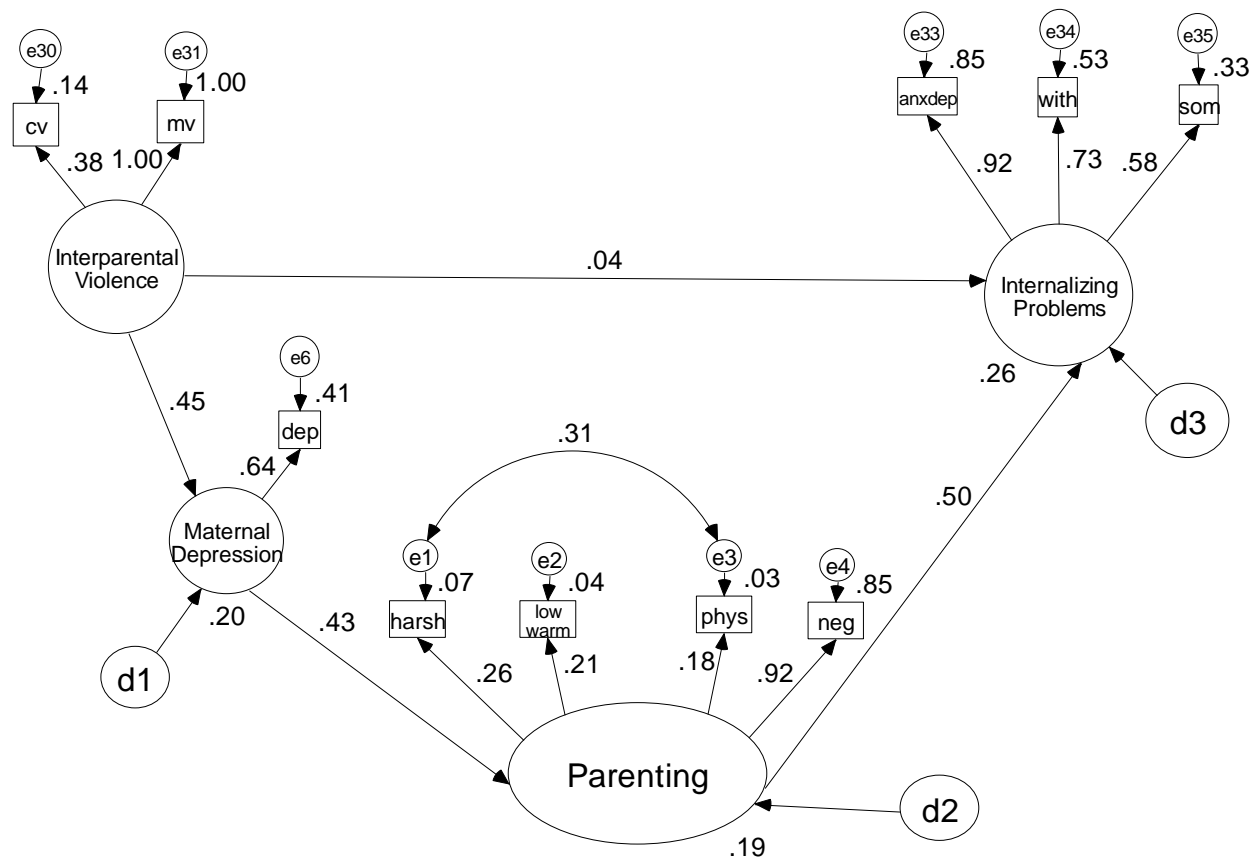
Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

The path from Maternal Depression to Parenting approached statistical significance

( $p = .09$ )



**Figure 9. Structural Model for Internalizing Problems with Direct Path from Interparental Violence for Battered Women Only**



Chi-square 49.55 degrees of freedom 31  $p < .05$

Comparative Fit Index (CFI) .93

Root Mean Square Error of Approximation (RMSEA) .06

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

The path from Maternal Depression to Parenting approached statistical significance

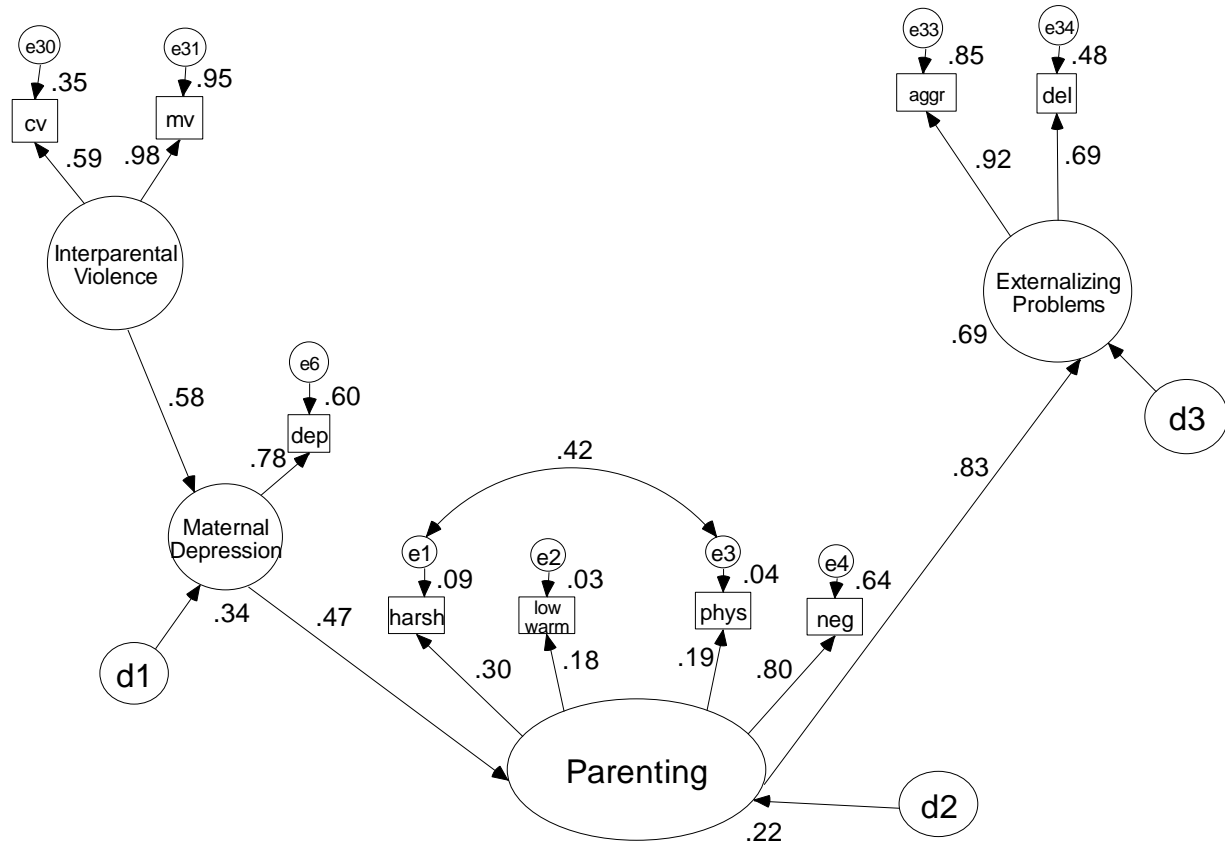
( $p = .09$ ). The path from Interparental Violence to Children's Internalizing Problems were not statistically significant ( $p = .62$ ).

Overall, the results support a strong indirect effect of interparental violence on children's internalizing problems through maternal depression and maternal use of maladaptive parenting practices. There was stronger evidence in support of this indirect pathway in both the nonbattered and the battered groups than when the sample was examined as a whole. The explanation for this phenomena is that there was more variance in interparental violence and children's internalizing and externalizing problems when the sample was examined as a whole. Thus, the indirect pathway accounted for a similar amount of variance in the sub-samples, but in the entire sample there was more variance left unaccounted for.

#### *Models of the Effects of Interparental Violence on Children's Externalizing Problems*

The indirect path model for externalizing problems for the entire sample is presented in Figure 10. Although the chi-square for the model was significant, the fit indices indicated that the model fit the data well (CFI .95, RMSEA .07). All of the structural paths are presented as standardized path coefficients, and all of these path coefficients were statistically significant ( $p < .01$ ). The pattern of results was similar as the results of the model for internalizing problems, indicating a strong relationship between interparental violence and maternal depression (.59), between maternal depression and maladaptive parenting (.47), and an even stronger relationship between maladaptive parenting and children's externalizing problems (.83).

Figure 10. Structural Model – Externalizing Problems



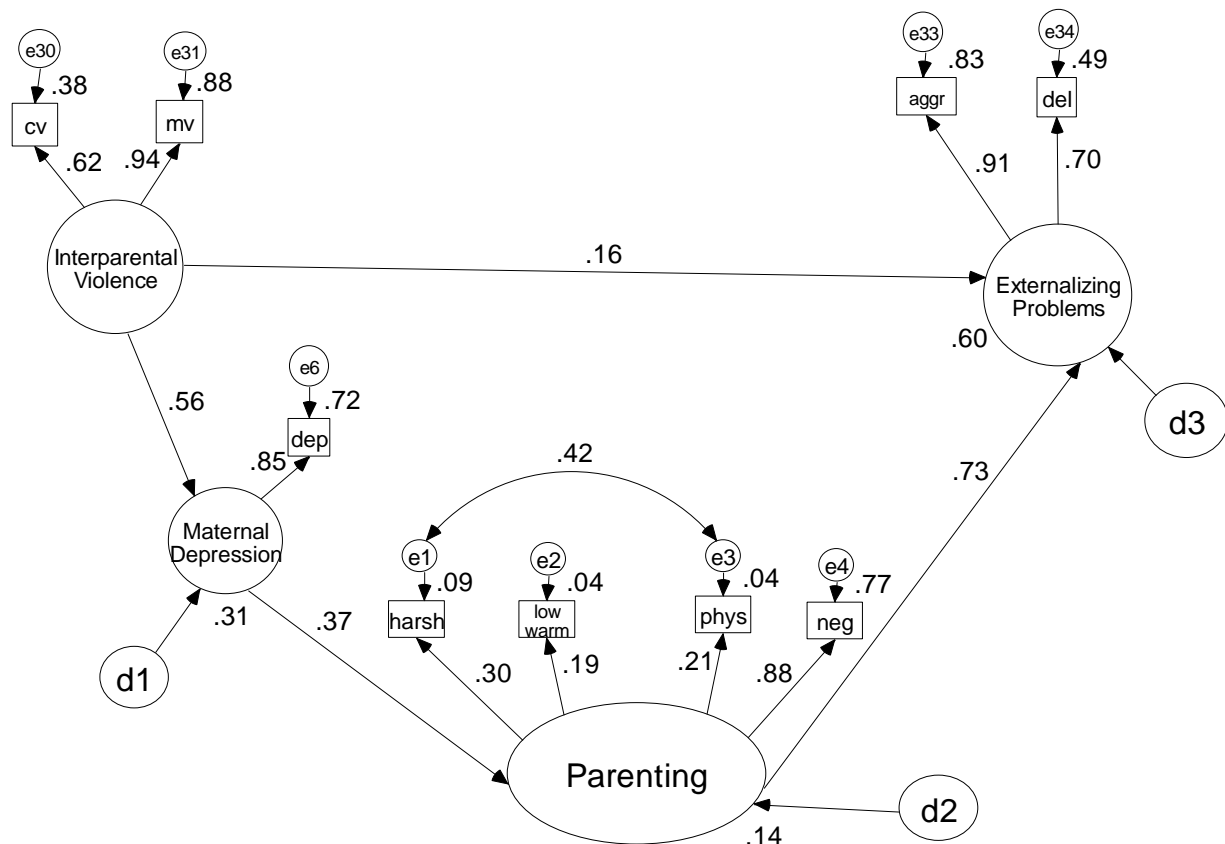
Chi-square 64.34 degrees of freedom 23  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .07

The model with a direct path from interparental violence to externalizing problems is presented in Figure 11. There was a small (.16) but statistically significant direct path from interparental violence to children's externalizing problems. Although chi-square difference test indicated an improvement in fit with the inclusion of this direct path, the CFI and RMSEA remained unchanged with the addition of the direct path (Table 9). Further, the direct path from interparental violence to children's externalizing problems (.16) was greatly reduced from the correlation between interparental violence and children's externalizing problems (.34) revealed by the measurement model. Thus, the indirect pathway accounted for greater than half of the relationship between interparental violence and children's externalizing problems.

Figure 11. Structural Model – Externalizing Model with Direct and Indirect Paths



Chi-square 57.70 degrees of freedom 22  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .07

Table 9. Model Comparison of Externalizing Models with and Without Direct Path from Interparental Violence

Model	$\chi^2$	Model df	p<	CFI	RMSEA	$\Delta\chi^2$	$\Delta$ df	p<
<b>Entire Sample</b>								
Model a	64.74	23	.001	.95	.07	--	--	--
Model b	57.70	22	.001	.95	.07	7.04	1	.01
<b>Nonbattered Sample</b>								
Model a	32.31	23	.09	.98	.05	--	--	--
Model b	32.31	22	.07	.97	.05	0	1	ns
<b>Battered Sample</b>								
Model a	34.52	25	.10	.97	.05	--	--	--
Model b	34.51	24	.08	.96	.05	.01	1	ns

Model a – No direct path from interparental violence to children’s externalizing problems

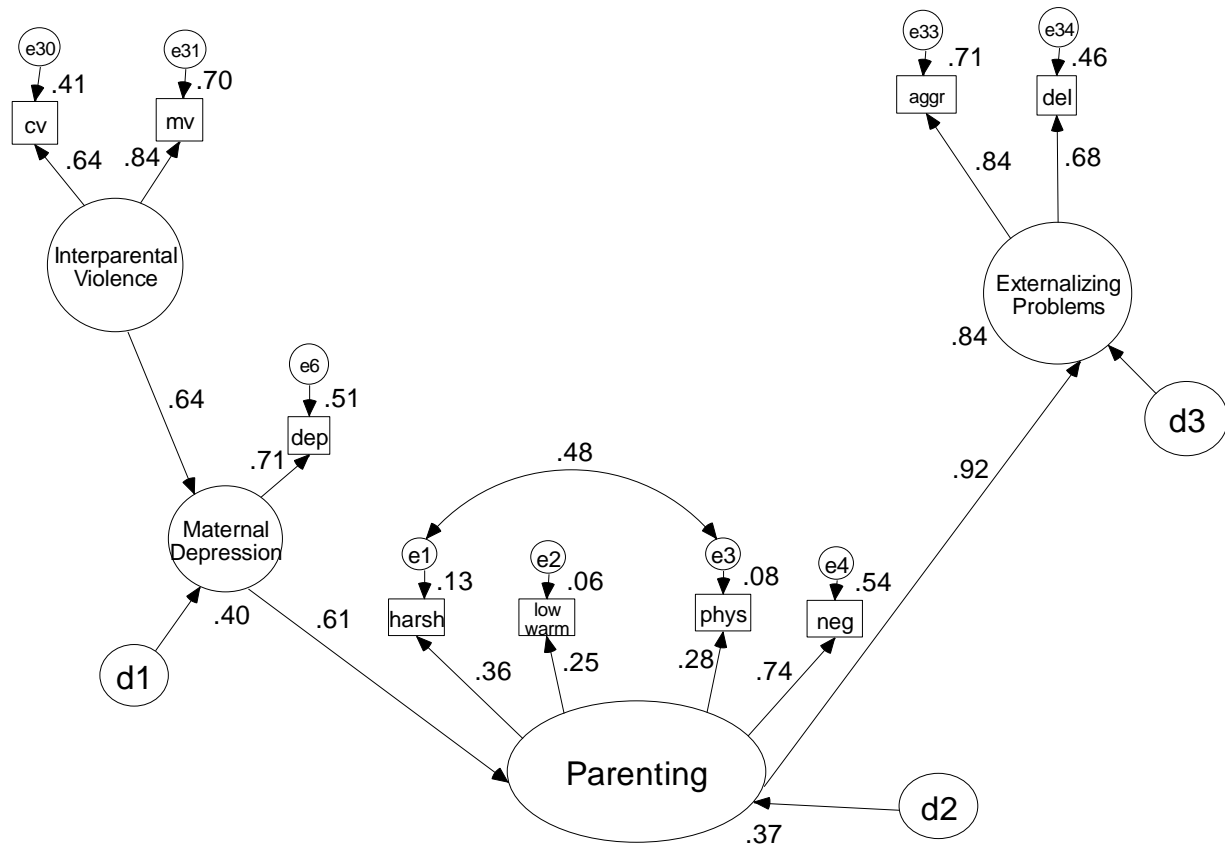
Model b – Model including path from interparental violence to children’s externalizing problems

Note: CFI = comparative fit index, RMSEA = root mean square error of approximation,  $\Delta\chi^2$  and  $\Delta$ df indicate changes in model relative to the previous model.

The models were then fit to the data separately for the nonbattered and battered groups. The indirect path model of the effects of interparental violence on children's externalizing problems fit the data well in the nonbattered group (Figure 12). This was indicated both by the fit indices (CFI .98; RMSEA .05) and by a nonsignificant chi-square. The pattern of relationships was similar for this group as for the sample as a whole, with a strong relationship between interparental violence and maternal depression (.64), between maternal depression and maladaptive parenting (.61), and an even stronger relationship between maladaptive parenting and children's internalizing problems (.92).

The model was then fit to the data with the inclusion of a direct path from interparental violence to children's externalizing problems (Figure 13). The results of this analysis strongly supported the strength of the hypothesized indirect pathway. The direct path from interparental violence to children's externalizing problems was both small (-.01) and not statistically significant. This was a significant reduction from the correlation between interparental violence and children's externalizing problems (.36) revealed by the measurement model. Additionally, the chi-square difference test indicated that there was not a statistically significant improvement in the fit of the model with the inclusion of this direct path (Table 9). Thus, the entire relationship between interparental violence and children's externalizing problems was accounted for by the indirect pathway.

Figure 12. Structural Model – Externalizing Problems for Nonbattered Women Only



Chi-square 32.31 degrees of freedom 23  $p=.09$  (not significant)

Comparative Fit Index (CFI) .98

Root Mean Square Error of Approximation (RMSEA) .05

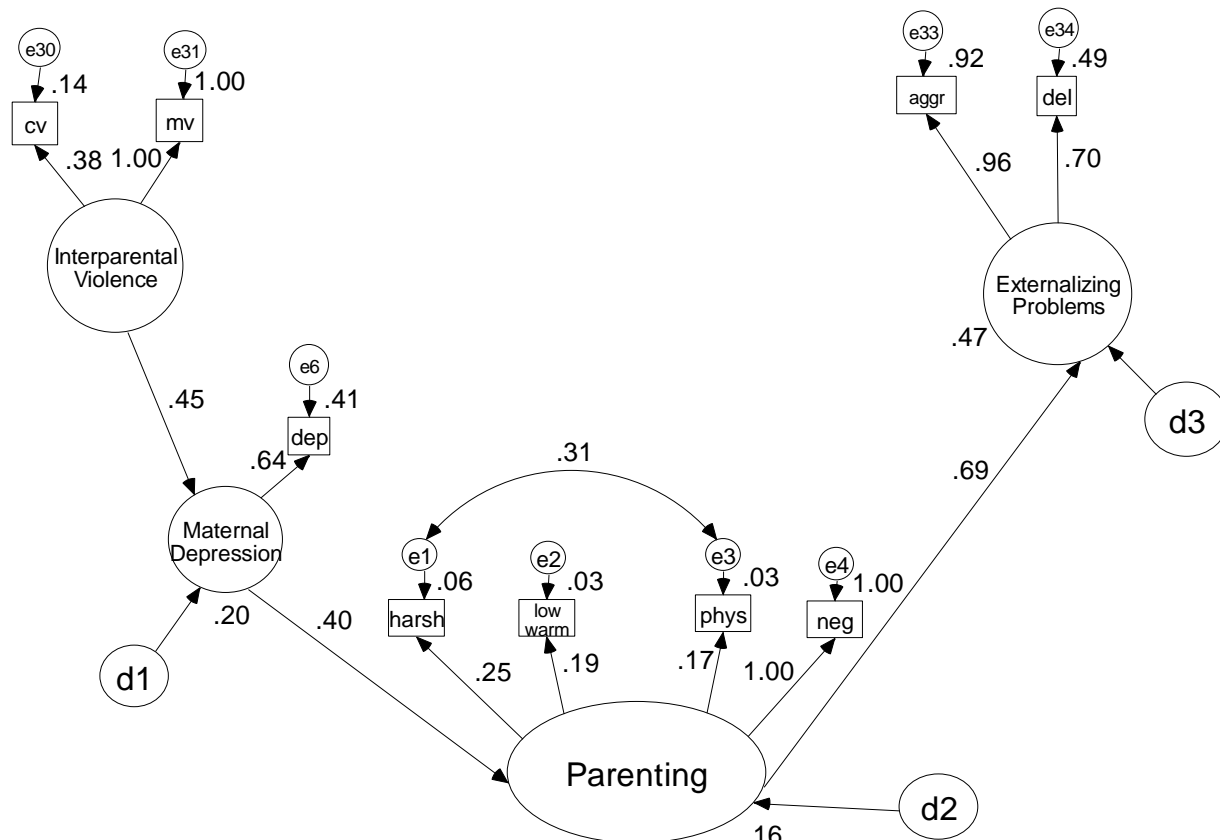




The pattern of results for the battered group was similar to the results for in the nonbattered group (Figure 14). Just as in the nonbattered group, an excellent fit of the indirect path model to the data was indicated both by a nonsignificant chi-square and an examination of the fit indices (CFI .97; RMSEA .05). The path coefficients were similar to what was found in the nonbattered group with moderate relationships between interparental violence and maternal depression (.45) and between maternal depression and maladaptive parenting (.40), and a stronger relationship between maladaptive parenting and children's externalizing problems. The path from maternal depression to maladaptive parenting approached significance ( $p=.07$ ), likely due to the smaller sample size in this group.

Again, the model was then fit to the data with the inclusion of a direct path from interparental violence to children's externalizing problems (Figure 15). Two separate pieces of evidence support the strength of the indirect path of effects of interparental violence on children's externalizing problems in the battered group. First, the direct path was both small (-.01) and not statistically significant. This was a significant reduction from the correlation between interparental violence and children's externalizing problems (.15) revealed by the measurement model. Second, the chi-square difference test indicated that there was not a statistically significant improvement in the fit of the model with the inclusion of the direct path from interparental violence to children's externalizing problems (Table 9). Thus the indirect path appeared to account for the entire relationship between interparental violence and children's externalizing problems in the battered group.

Figure 14. Externalizing Model – Battered Women Only



Chi-square 34.52 degrees of freedom 25  $p=.10$  (not significant)

Comparative Fit Index (CFI) .97

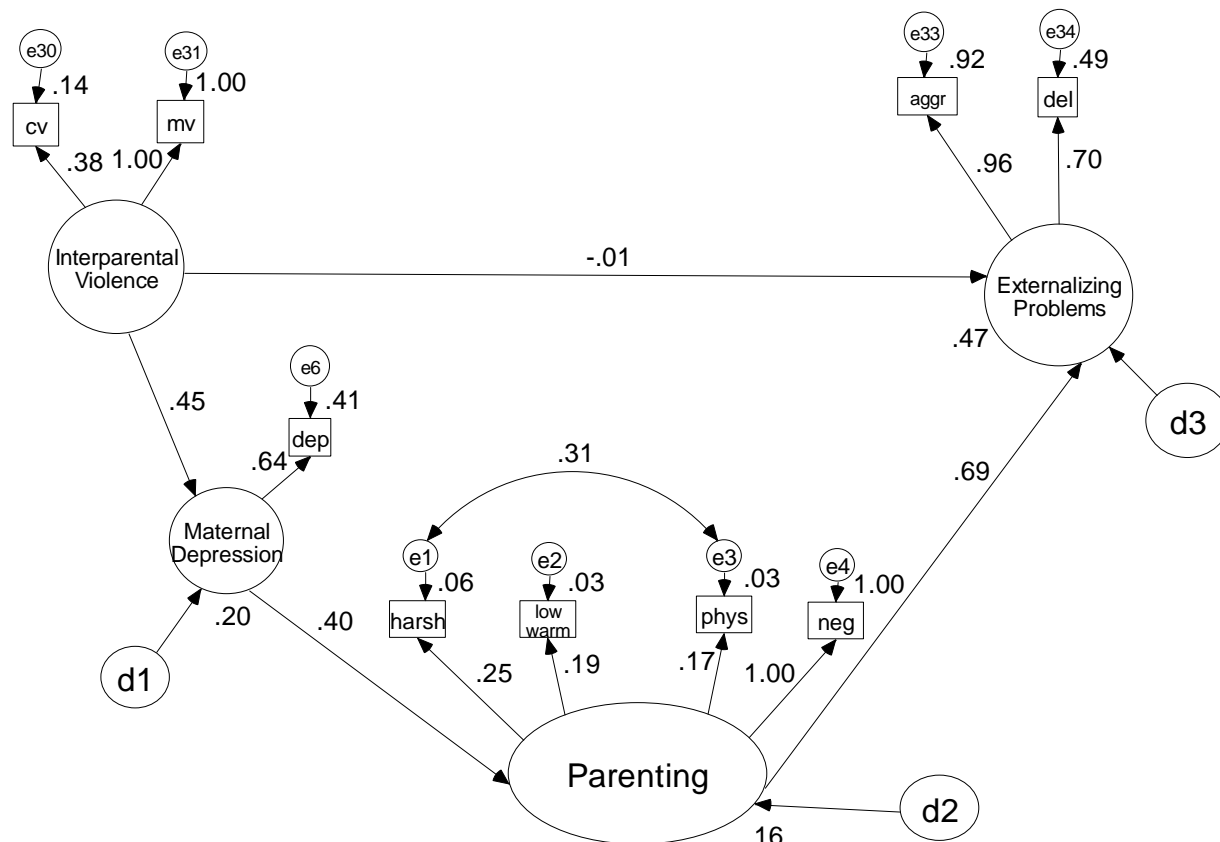
Root Mean Square Error of Approximation (RMSEA) .05

Note: It was necessary to fix the variance of the error terms associated with maternal report of interparental violence and maternal report of negative parenting to zero in order to prevent an improper solution

The path from Maternal Depression to Parenting approached statistical significance

( $p=.07$ )

**Figure 15. Structural Model for Externalizing Problems with Direct Path from Interparental Violence for Battered Women Only**



Chi-square 34.51 degrees of freedom 24 (not significant)

Comparative Fit Index (CFI) .96

Root Mean Square Error of Approximation (RMSEA) .05

Note: It was necessary to fix the variance of the error terms associated with maternal report of interparental violence and maternal report of negative parenting to zero in order to prevent an improper solution

The paths from Maternal Depression to Parenting approached statistical significance

( $p=.07$ ). The path from Interparental Violence to Children's Externalizing Problems was

not statistically significant ( $p=.98$ ).

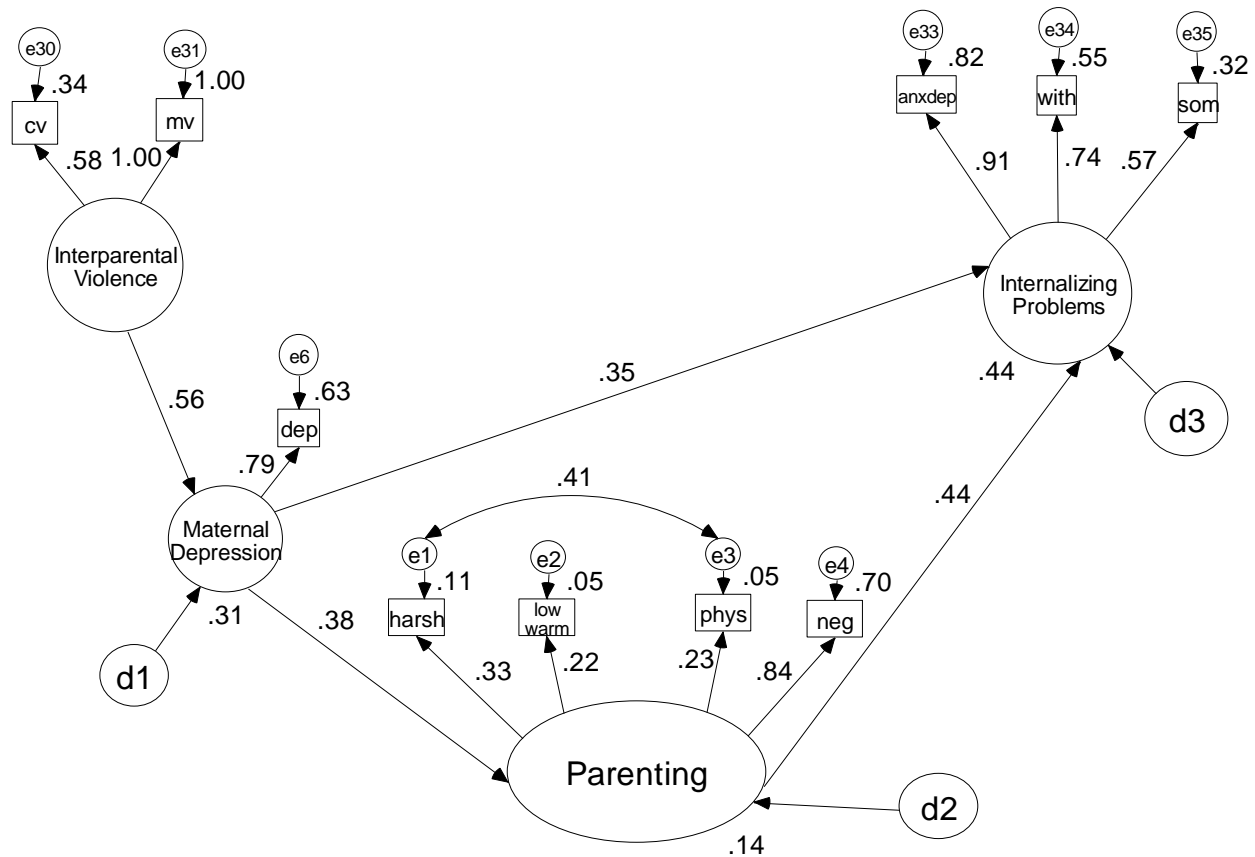
Thus, the overall pattern of results suggests a strong indirect relationship between interparental violence and children's internalizing and externalizing problems. The indirect pathway accounted for similar portions of the variance in children's internalizing and externalizing problems when tested in the sample as a whole, for the battered group, and for the nonbattered group. The fact that there was still a significant direct effect when the sample was examined as a whole was due to the fact that there was more variance to be accounted for in the entire sample.

Examination of models with and without direct paths from interparental violence supported a strong indirect effect of interparental violence on children's internalizing and externalizing problems through maternal depression and maternal use of maladaptive parenting practices. The possibility remained, though, that the indirect effect was through only maternal depression, and that maladaptive parenting practices were not an essential aspect of the model. By testing models with and without direct paths from maternal depression, the importance of maladaptive parenting practices to the hypothesized indirect pathway could be assessed. Testing models with direct paths from both interparental violence and maternal depression to children's internalizing and externalizing problems would produce under-identified models. As an alternative to testing both direct paths simultaneously, an additional set of analyses was conducted comparing models with and without a direct path from maternal depression to children's internalizing and externalizing problems.

This test was first conducted for internalizing problems with the entire sample. The model with a direct path from maternal depression to internalizing problems is presented in Figure 16. This model indicated a moderate (.35) and statistically significant relationship between maternal depression and children's internalizing problems not accounted for by the

relationship between maternal depression and maternal maladaptive parenting. The chi-square difference test assessed the difference in fit between the models with and without a direct path from maternal depression and is presented in Table 10. This indicated an improvement in fit with the addition of this direct path. Further, unlike the analyses comparing the models with and without direct paths from interparental violence, the CFI (.97 vs. .95) and RMSEA (.05 vs. .06) both indicated a slight improvement in fit with the addition of the direct path. This indicated that there was a relationship between maternal depression and interparental violence that was not accounted for by the relationship of maternal depression and maternal maladaptive parenting.

Figure 16. Structural Model Internalizing Problems with Direct Path from Depression



Chi-square 58.66 degrees of freedom 30  $p < .001$

Comparative Fit Index (CFI) .97

Root Mean Square Error of Approximation (RMSEA) .05

Table 10. Model Comparison of Internalizing Models with and Without Direct Path from Maternal Depression

Model	$\chi^2$	Model df	p<	CFI	RMSEA	$\Delta\chi^2$	$\Delta$ df	p<
<b>Entire Sample</b>								
Model a	76.21	31	.001	.95	.06	--	--	--
Model b	58.66	30	.001	.97	.05	17.55	1	.01
<b>Nonbattered Group</b>								
Model a	39.58	31	.14	.98	.04	--	--	--
Model b	36.33	30	.20	.99	.03	3.25	1	ns
<b>Battered Group</b>								
Model a	50.30	33	<.05	.94	.06	--	--	--
Model b	46.94	32	<.05	.95	.05	3.36	1	ns

Model a – No direct path from maternal depression to children’s internalizing problems

Model b – Model including path from maternal depression to children’s internalizing problems

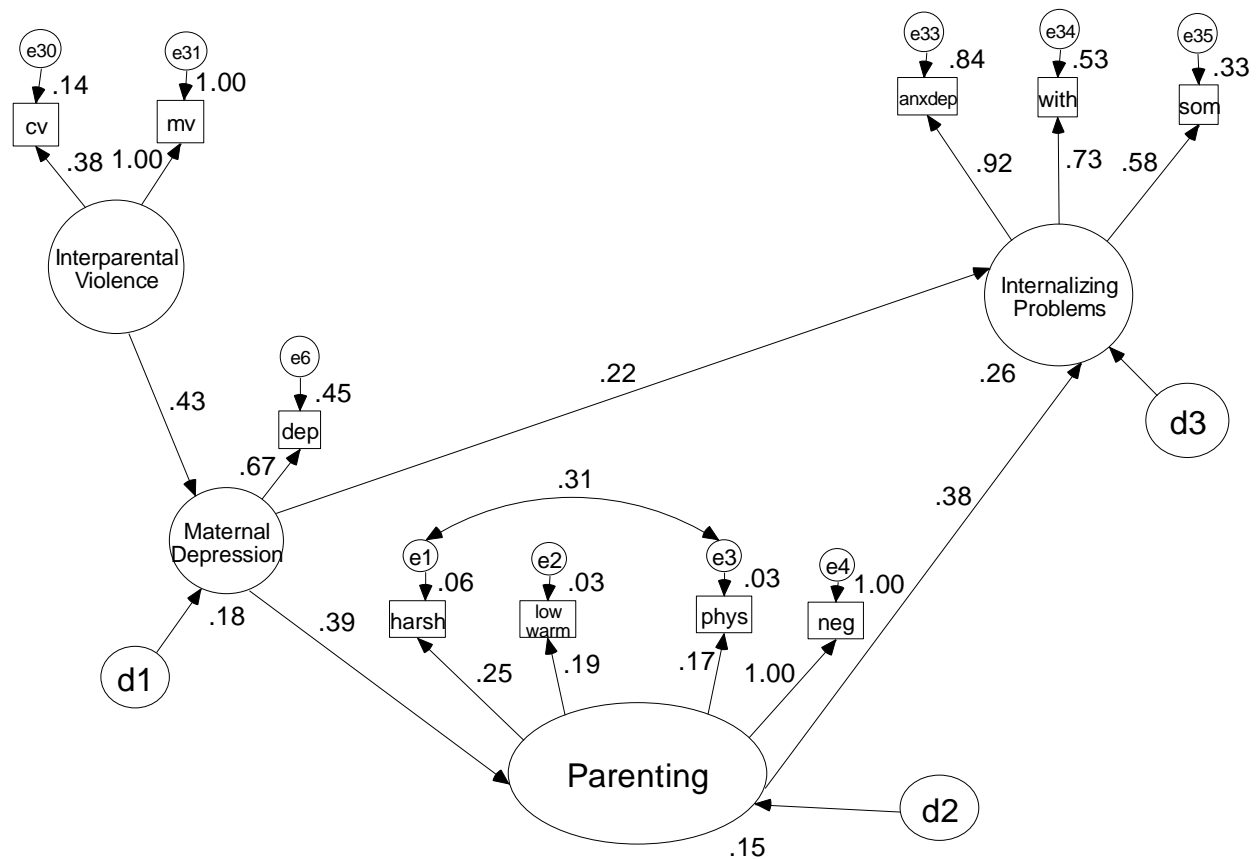


Next, this model with a direct path from maternal depression was fit to the data for the nonbattered group only (Figure 17). The chi-square difference test indicated that there was not a significant improvement in fit with the inclusion of this path (Table 10). Further, examination of the CFI (.98 vs. .99) and RMSEA (.04 vs. .03) confirmed that there was little improvement in fit with the addition of the direct path from maternal depression to children's internalizing problems. There was, though, a moderate relationship between maternal depression and internalizing problems (.25) that approached statistical significance ( $p=.07$ ). The lack of statistical significance when this model was tested is likely due to a smaller sample size than when the model was examined in the entire sample. The results thus converged with the data from the sample as a whole, revealing a significant direct effect of maternal depression on children's internalizing problems.

The pattern of results for the battered group was similar to those of the nonbattered group (Figure 18). The chi-square difference test indicated that there was not a statistically significant improvement in fit with the inclusion of this direct path, and there was only a small increase in the fit of the model indicated by the CFI and RMSEA (Table 10). There was, though, a moderate (.22) but not statistically significant ( $p=.14$ ) direct relationship between maternal depression and children's internalizing problems. The lack of statistical significance is likely due to the reduction in sample size from when this model was examined in the sample as a whole. Thus, the results converged with the results from the nonbattered group as well as the results from the entire sample. They revealed a moderate direct effect of maternal depression on children's internalizing problems.



**Figure 18. Structural Model for Internalizing Problems with Direct Path from Maternal Depression for Battered Women Only**



Chi-square 46.94 degrees of freedom 32  $p < .05$

Comparative Fit Index (CFI) .95

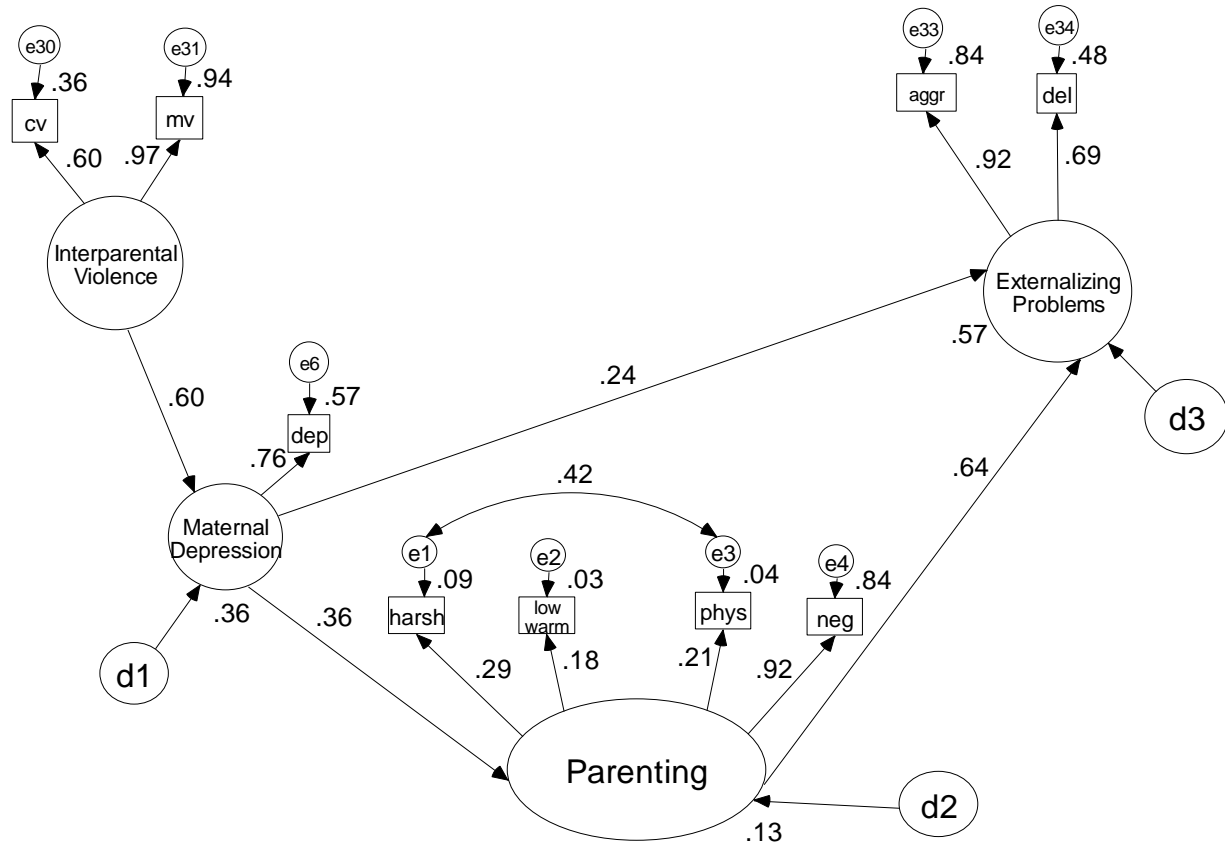
Root Mean Square Error of Approximation (RMSEA) .05

Note: It was necessary to fix the variance for the error terms associated with maternal report of interparental violence and maternal report of negative parenting to zero to prevent an improper solution.

The path from Maternal Depression to Parenting approached significance ( $p = .07$ ). The path from Maternal Depression to Internalizing Problems was not significant ( $p = .14$ ).

An identical set of analyses was conducted with children's externalizing problems, examining the improvement in fit with the addition of a direct path from maternal depression to children's externalizing problems. The model with this direct path is presented in Figure 19. The chi-square difference test is presented in Table 11 and indicated a significant improvement in fit with the inclusion of the direct path. Further, the CFI (.96 vs. .95) and RMSEA (.07 vs. .06) indicated a slight improvement in fit with the addition of a direct path from maternal depression to externalizing problems. Again, this indicated a moderate (.24) and statistically significant relationship between maternal depression and children's externalizing problems that was not accounted for by the indirect pathway through maladaptive parenting.

Figure 19. Structural Model Externalizing Problems with Direct Path from Depression



Chi-square 54.73 degrees of freedom 22  $p < .001$

Comparative Fit Index (CFI) .96

Root Mean Square Error of Approximation (RMSEA) .06

Table 11. Model Comparison of Externalizing Models with and Without Direct Path from Maternal Depression

Model	$\chi^2$	Model df	p	CFI	RMSEA	$\Delta\chi^2$	$\Delta df$	p<
<b>Entire Sample</b>								
Model a	64.74	23	<.001	.95	.07	--	--	--
Model b	55.20	22	<.001	.96	.06	9.54	1	.01
<b>Nonbattered Group</b>								
Model a	32.31	23	.09	.98	.05	--	--	--
Model b	31.22	22	.09	.98	.05	1.09	1	ns
<b>Battered Group</b>								
Model a	34.52	25	.10	.97	.05	--	--	--
Model b	34.40	24	.08	.96	.05	.12	1	ns

Model a – No direct path from maternal depression to children’s externalizing problems

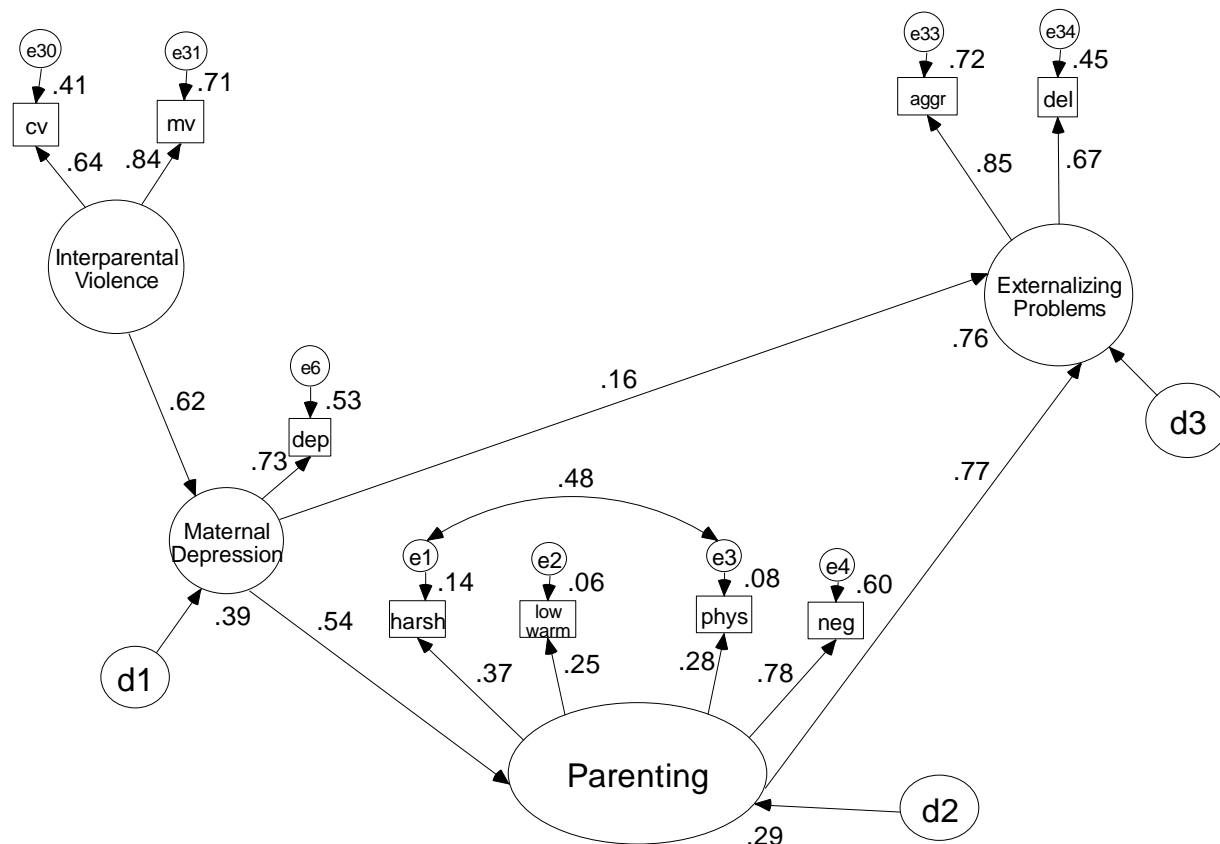
Model b – Model including path from maternal depression to children’s externalizing problems

Note: CFI = comparative fit index, RMSEA = root mean square error of approximation,  $\Delta\chi^2$  and

$\Delta df$  indicate changes in model relative to the previous model

The model with a direct path from maternal depression to children's externalizing problems was then fit to the data for the nonbattered group only (Figure 20). The direct path was moderate (.16) but not statistically significant ( $p=.27$ ). The chi-square difference test indicated that there was not a statistically significant improvement in the fit of the model with the inclusion of this direct path, and the CFI and RMSEA were unchanged with the inclusion of this direct path (Table 11). Although the direct path from maternal depression to children's internalizing problems was not significant, this was likely due to the smaller sample size when examined only in the nonbattered group. Thus, the results converged with the results from the sample as a whole, revealing a moderate direct effect of maternal depression on children's externalizing problems.

**Figure 20. Structural Model for Externalizing Problems with Direct Path from Maternal Depression for Nonbattered Women Only**



Chi-square 31.22 degrees of freedom 22  $p=.09$  (not significant)

Comparative Fit Index (CFI) .98

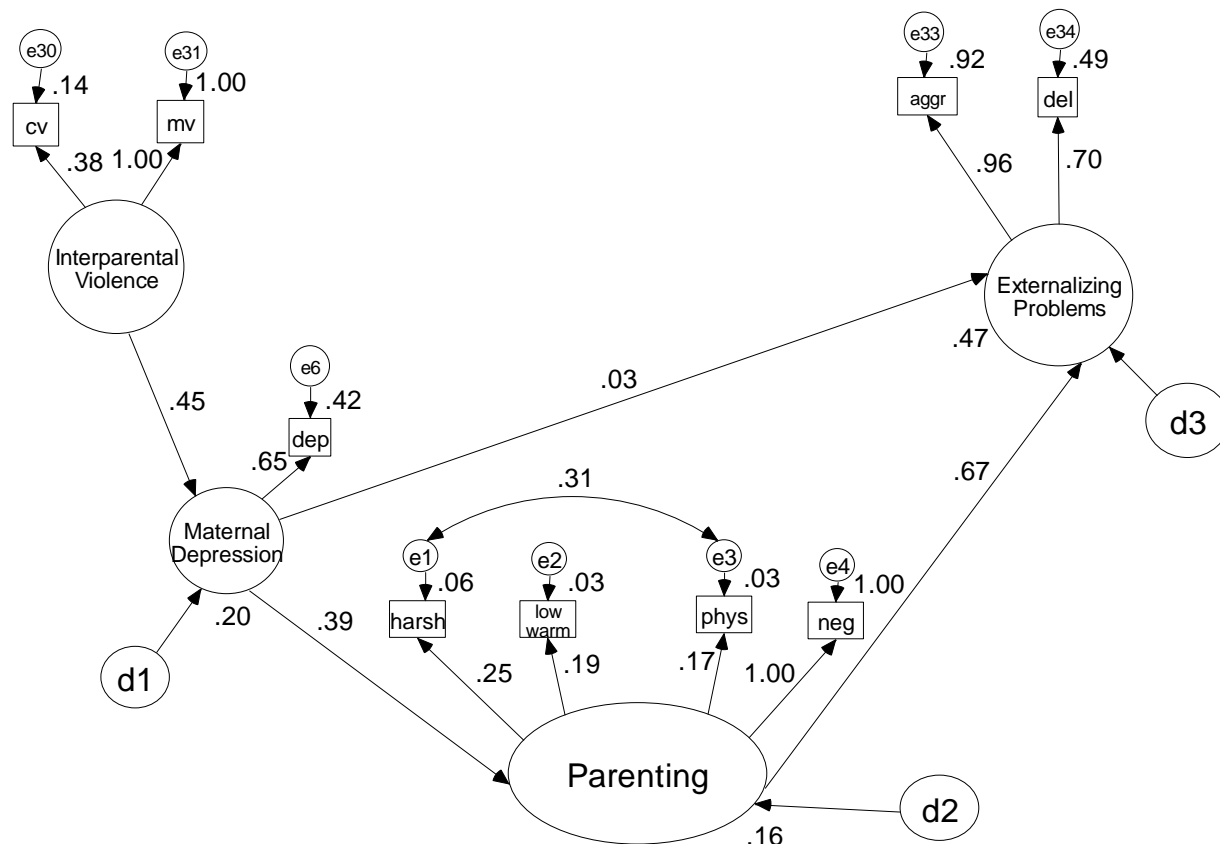
Root Mean Square Error of Approximation (RMSEA) .03

The path from Maternal Depression to Children's Externalizing Problems was not statistically significant ( $p=.27$ ).



The results from the battered group diverged from the results of the models when fit to the entire sample and the nonbattered group. This model is presented in Figure 21 and illustrates a small (.03) path from maternal depression to children's externalizing problems that approached significance ( $p=.08$ ). The chi-square difference test indicated that there was neither a statistically significant improvement in the chi-square for the model nor an appreciable gain in fit as indicated by the CFI or the RMSEA with the inclusion of this direct path (Table 11). This is likely the result of the lower correlation of interparental violence and children's externalizing problems revealed (.15) by the measurement model. The correlation of interparental violence and children's externalizing problems was .34 in the entire sample and .36 for the battered group. Thus, the indirect paths from maternal depression to children's externalizing problems are similar in magnitude for the battered group, the nonbattered group, and the sample as a whole. There was more residual effect left in the nonbattered group and the sample as a whole, due to the greater initial relationship between interparental violence and children's externalizing problems in these groups.

**Figure 21. Structural Model for Externalizing Problems with Direct Path from Maternal Depression for Battered Women Only**



Chi-square 34.40 degrees of freedom 24  $p=.08$  (not significant)

Comparative Fit Index (CFI) .96

Root Mean Square Error of Approximation (RMSEA) .05

Note: It was necessary to fix the variance for the error terms associated with maternal report of interparental violence and maternal report of negative parenting to zero in order to prevent an improper solution.

The path from Maternal Depression to Parenting approached significance ( $p=.07$ ). The path from Maternal Depression to children's Externalizing Problems was not significant ( $p=.73$ ).

Thus, the models fit similarly in the entire sample, the battered group only, and the nonbattered group only. Further, the path coefficients were similar across these analyses. The results support two indirect pathways from interparental violence to children's internalizing and externalizing problems. The initial analyses supported the existence of a pathway from interparental violence to children's internalizing and externalizing problems through both maternal depression and maternal maladaptive parenting practices. The analyses with direct paths from maternal depression suggest that the most important indirect pathway is from interparental violence to maternal depression and from maternal depression directly to children's internalizing and externalizing problems.

#### *Alternative Models*

Additional analyses were conducted to test the specificity of maternal depression in the indirect pathway from interparental violence to children's internalizing and externalizing problems. Overall, the fit of the earlier models as well as the indirect path coefficients were similar when the models fit to the data for the battered group, the nonbattered group, and the sample as a whole. Thus, these exploratory analyses were conducted only in the sample as a whole. Graphical representations of these alternative models are presented in Appendix E.

The first set of analyses examined, as has previous research in this area (e. g. Linares et al., 2001), the overall psychological distress of mothers in the indirect pathway between interparental violence and children's internalizing and externalizing problems. A comparison of these two models and the models for internalizing and externalizing problems with maternal depression included in the indirect pathway revealed similar path coefficients as well as similar fit statistics. Thus, the initial results indicated that maternal depression was not an essential aspect of the indirect pathway, as overall psychological distress led to a similar pattern of results.

A second set of models were fit to the data to see if another internalizing psychological problem, maternal anxiety, fit the data as well as maternal depression in the indirect pathway between interparental violence and children's internalizing and externalizing problems. These models displayed a nearly identical fit as well as similar path coefficients as the models with maternal depression. In order to examine if there was a unique effect of maternal depression, above and beyond that accounted for by maternal anxiety, two models were fit to the data, one for children's internalizing and one for children's externalizing problems, that included both maternal depression and anxiety. The path coefficients were similar as when only anxiety was included in the indirect path.

The next set of analyses was conducted to examine if the fit of the model with psychological distress was driven by the inclusion of both depression and anxiety. In order to test this hypothesis, two final models were tested using a modified global severity index. This index removed the items from the depression and anxiety scales. Including symptoms other than those of depression and anxiety produced comparable fit indices and path coefficients as those observed for depression, anxiety, and overall psychological distress. Thus, although the indirect path model fit the data well, the relationship of maternal depression to the model appeared to be nonspecific, able to be replaced by anxiety and global distress without a reduction in either the fit of the model or the magnitude of the path coefficients.

## DISCUSSION

The purpose of this study was to examine an indirect path model of the effects of interparental violence on children's internalizing and externalizing problems whereby interparental violence leads to maternal depression, which leads to maternal maladaptive parenting, which then exerts an influence on children's internalizing and externalizing problems. Overall, the results support the hypothesis that interparental violence is related to children's internalizing and externalizing problems through increases in maternal depression that lead to greater use of maladaptive parenting practices.

An initial contribution of this study is that a higher order model of maladaptive parenting was developed. The higher order model consisted of child reported harsh discipline, physical discipline, low warmth and involvement, and mother reported negative parenting. Consistent with the results of Frick, Christian, and Wooten (1999), the inclusion of positive parenting practices to the model did not improve the fit of the model. The resulting higher-order maladaptive parenting model had an excellent fit to the data. The study proposed that these types of parenting practices, as a whole, would lead to increases in children's internalizing and externalizing problems. When this single maladaptive parenting factor was later entered into the structural models, it was strongly related to children's internalizing and externalizing problems.

The results of this study further add to the existing literature in terms of the distribution of interparental violence in a low-income, minority population. As expected, both mothers' and children's reports of interparental violence were highly positively skewed in the nonbattered group, with the majority of participants reporting little or no interparental violence. An unexpected finding was that both mother and child reported interparental violence was relatively normally distributed in the battered group. Thus, within women who have been classified as

battered, there is still substantial variability in the level of interparental violence that has occurred.

*Interparental Violence and Children's Internalizing and Externalizing Problems*

Prior research has indicated that interparental violence is related to externalizing problems in children (Buehler, Anthony, Krishnakumar, Stone, Gerard, & Pemberton, 1997; Criss, Petit, Bates, Dodge, & Lapp, 2002; Cummings, Davies, & Simpson, 1994; Grynych, Fincham, Jouriles, & McDonald, 2000). When testing mean differences between children of battered versus children of nonbattered women, children of battered women were both more aggressive and more delinquent. Research has also consistently supported a link between interparental conflict and children's internalizing problems (Cummings, Davies, & Simpson, 1994; Durant, Getts, Cadenhead, Emans, & Woods, 1995; Grynych, Fincham, Jouriles, & McDonald, 2000). The findings of this study were consistent with this earlier research as children of battered mothers exhibited more somatic complaints and were more anxious, depressed, and withdrawn than children of nonbattered women.

The results of this study diverged from earlier studies when the actual level of interparental violence was related to children's internalizing and externalizing problems. The correlations between both mother and child reported interparental violence and children's delinquent and aggressive externalizing were only significant in the nonbattered group. The same pattern of results emerged with children's internalizing problems. Maternal report of interparental violence was correlated with children's anxiety, depression, and somatic complaints in the nonbattered but not in the battered group. Thus, it appears that beyond a threshold of interparental violence, the actual level of interparental violence does not exert any additional influence on children's internalizing and externalizing problems

### *Marital Conflict and Parenting*

Previous studies have found that battered women are less attentive to and engage in more conflict with their children (Holden & Ritchie, 1991). Further, battered women have been found to use more both harsh and physical discipline with their children (Criss et al., 2002; Straus, 1983). The between-groups comparisons were inconsistent with this earlier research as battered mothers neither lower in warmth and involvement with their children nor did they use more physical discipline than nonbattered mothers. Contrary to expectations, the nonbattered mothers were actually lower in warmth and involvement and used more physical discipline than the battered mothers.

### *Maternal Depression and Children's Internalizing and Externalizing Problems*

Maternal depression has consistently been related to both internalizing and externalizing problems in children (Downey & Coyne, 1990; Kramer, Warner, Olfson, Ebanks, Chaput, & Weissman, 1998; Seifer et al., 2001; Marchand and Hock ; 1998; Wright, George, Burke, Gelfand, & Teti, 2000). Overall, the results of the present study were consistent with earlier findings on the relationship between maternal depression and children's internalizing and externalizing problems. For both battered and nonbattered groups, zero-order correlations revealed that maternal depression was related to children's internalizing and externalizing problems. The one exception was that maternal depression was not significantly related to delinquent behavior in the battered group. There was indirect support for this relationship, though, as battered women were both higher in depression and had children who were more delinquent than children of nonbattered women.

### *Marital Conflict and Depression*

Research in the area of marital conflict has consistently found links between marital conflict and maternal depression (e. g. Jaffe, Wolfe, Wilson, & Zak, 1985; Jaffe, Wolfe, Wilson, & Zak, 1986; Seifer et al., 2001). The tests of mean differences between battered and nonbattered women were consistent with these earlier results, as the battered women reported significantly higher levels of depressive symptoms. Contrary to expectations, the actual level of interparental violence was related to the level of maternal depression only for nonbattered women.

This did not rule out the hypothesized relationship between interparental violence and maternal depression. Battered women, who reported higher levels of interparental violence than nonbattered women, also reported higher levels of depression. The higher levels of depression in the battered group support a relationship between interparental violence and maternal depression. The lack of relationship of the level of interparental violence and maternal depression within the battered group is supportive of a threshold effect. Once the level of interparental violence reached the elevated levels reported by the battered women, the absolute level of interparental violence was not related to higher levels of maternal depression.

### *Maternal Depression and Parenting*

Downey and Coyne (1990) paint a picture of the depressed mother as more hostile and irritable and less consistent than well mothers. Depressed individuals have described their mothers as more rejecting, hostilely detached, and as using more control through both guilt and hostility (Crook, Raskin, & Eliot, 1981). Consistent with these prior studies, the present study found that depression was related to maternal negative parenting practices consisting of criticism, frustration, yelling, and difficulty controlling children. Although the zero-order



correlations did not reveal correlations of maternal depression with harsh discipline, physical discipline, and low-warmth and involvement, when these were considered as a whole in the structural model, depression was related to these maladaptive parenting practices.

#### *Maternal Parenting and Children's Internalizing and Externalizing Problems*

In other samples, lower levels of maternal involvement and support as well as more harsh and physical punishment were related to children's externalizing problems (Nix, et al., 1999; Wasserman, et al., 1996). Overall the results of this study were consistent with earlier research. Within the non-battered group, low warmth, physical discipline, harsh discipline, criticism, and frustration were related to children's internalizing and externalizing problems. Contrary to expectations, these results did not hold in the battered group. The structural models did reveal that, when taken as a whole, maladaptive parenting was related to both internalizing and externalizing problems in both the battered and the nonbattered group.

#### *Indirect Models of the Effects of Interparental Violence*

Prior research has supported indirect effects of interparental violence on youth. Linares et al. (2001) found evidence that maternal psychological distress mediated the relationship between interparental violence and children's internalizing and externalizing problems. Fauber et al. (1990) found that disruptions in maternal parenting practices mediated the relationship between interparental violence and children's internalizing and externalizing problems. The contribution of the present study is that it combined these previously supported models and found support for models whereby the effects of interparental violence on children's internalizing and externalizing problems may be partly explained by the relationship of interparental violence to maternal depression as well as the relationship between maternal depression and maternal use of maladaptive parenting practices.

Overall, the results of this study supported an indirect effect of interparental violence on children's internalizing and externalizing problems. When the sample was examined as a whole and separately for the battered and nonbattered groups, a significant amount of the variance in children's internalizing and externalizing problems was accounted for by the indirect path through maternal depression and maternal use of maladaptive parenting practices. The models with a direct path from maternal depression, though, suggest that this is the most important indirect path revealed by the present study. though, still a significant direct path from interparental violence to children's internalizing and externalizing problems. This may be accounted for by the significant distress that children exhibit when witnessing interparental violence (e. g. Grync & Fincham, 1993). This direct effect may also be due to the significant trauma experienced by children who witness a threat to their mothers (Scheeringa & Zeanah, 1995; McCloskey & Walker, 2000). Thus, although there is a significant indirect link between interparental violence and children's internalizing and externalizing problems, the present study also revealed a direct effect of interparental violence on children's internalizing and externalizing problems.

The results of the analyses indicate that the strongest indirect pathway is from interparental violence to maternal depression and from maternal depression directly to children's internalizing and externalizing problems. This was suggested by the indirect path models as well as by the correlational analyses. The correlational analyses revealed significant correlations between interparental violence and maternal depression and from maternal depression to children's internalizing and externalizing problems in both the battered and nonbattered samples. There was, though, very little evidence of relationships between either maternal depression or interparental violence and maladaptive parenting practices. Thus, although, maladaptive

parenting was related to children's internalizing and externalizing problems, it does not appear to be an integral part of the hypothesized model. One explanation for the direct effect of maternal depression could be the direct transmission of depressogenic cognitions from mothers to their children (Stark, Schmidt, & Joiner, 1996). Another explanation is that children become distressed in the presence of low maternal mood (Seiner & Gelfand, 1995). The results also indicated a significant direct effect of maternal depression on children's externalizing problems. Prior research on the effects of exposure to low parental mood has found evidence that children may become more angry as well as exhibit more negative behavior (Seiner & Gelfand, 1995; Solantus-Simula, et al., 2002). Thus, consistent with earlier research, there were direct effects of exposure to low maternal mood on children's internalizing and externalizing problems.

There are a number of reasons why the results of the present study differed from those obtained with the same data by McCloskey et al. (1995), who did not find a mediational role for maternal support or maternal psychological problems in the relationship between interparental violence and children's internalizing and externalizing problems. First, interparental violence, rather than family aggression as a whole, was measured. Second, rather than examine family support as a buffer, maternal maladaptive parenting practices were examined as a mediator. This study focused on how interparental violence affects children by affecting mothers. Thus, rather than treat harsh parenting as a correlate of interparental violence, it was treated as a consequence of interparental violence.

#### *Alternative Models*

Although the indirect path model was supported overall, an additional set of analyses tested the specificity of maternal depression in the indirect pathway between interparental violence and children's internalizing and externalizing problems. The results of these analyses

revealed a nonspecific effect of depression in these models. The models fit equally well when either psychological distress or maternal anxiety provided the link between interparental violence and maladaptive parenting. In order to examine if the model with maternal psychological distress was driven by maternal depression and anxiety, the model was then tested with psychological distress, not including any depressive or anxious symptoms. Removal of depressive and anxious symptoms did not strongly affect the fit of the model or the strength of the path coefficients.

Thus, although the indirect path from interparental violence accounted for a significant amount of the variance in children's internalizing and externalizing problems, additional analyses revealed that alternative models that did not take maternal depression into account fit the data equally well. Thus, the increases in children's internalizing and externalizing problems observed along with increases in levels of interparental violence, appear to be due to increases in maternal maladaptive parenting. The increases in maternal maladaptive parenting appear to be most parsimoniously described by increases in maternal psychological distress. There appears to be an overall decrement in psychological functioning due to violence experienced by mothers at the hands of their husbands.

### *Clinical Implications*

The children of battered mothers in this sample had more internalizing and externalizing problems, and the mothers, due to both depression and the use of maladaptive parenting practices, were less equipped to deal with these problems. The co-occurrence of marital discord and depression raises a significant clinical issue. Within normal variations of interparental conflict, if a couple presents with a depressed wife and marital conflict, it appears that the most appropriate focus of intervention efforts is the relationship between the husband and the wife. When cognitive therapy was compared with behavior marital therapy for couples where the wife

was depressed and the marriage was discordant, both were effective in reducing depression, but only behavior marital therapy also reduced marital discord (Beach, Smith, & Fincham, 1994). When children are involved, though, the picture becomes more complicated as these families often present a triad of problems in need of intervention, marital discord, depression, and parenting difficulties.

Interventions have been developed to deal with the particular parenting deficits of depressed mothers. Cicchetti, Rogosch, and Toth (2000) examined the efficacy of a program to increase positive interactions between mothers and their children in fostering normal cognitive development. Children in this study were examined at baseline (20 months) and again following treatment (36 months). The children of depressed mothers who were not assigned to the treatment group showed a slower rate of cognitive development. Those who participated in the intervention were indistinguishable from children of non-depressed parents. This particular program targeted the withdrawn and negative interactional pattern often characteristic of depressed mothers. Although the authors of this study conceptualized change as due to changes in the attachment relationship, these changes could also be viewed as the direct result of more positive interaction which leads to children feeling less negative affect and greater feelings of self-efficacy.

There may also be generalizations from maternal psychotherapy to the mother-child relationship. In a sample of depressed and non-depressed mothers of children between the ages of 2 and 4-years-old, those who received psychotherapy were better able to interpret and discuss facially expressed emotions with their children (Free, Alechina, & Zahn-Waxler, 1996). Thus, the lack of responsiveness often observed in depressed mothers could be due in part to the inability to interpret their children's emotional needs. This inability may be ameliorated by

treatment of the maternal depression, even if it did not directly address the mother-child relationship.

The family may also be the focus of intervention when depressed mothers present for treatment. The clinician may note the deficits in mother-child interaction, maternal psychological functioning, and marital difficulties often presented by mothers who are depressed. In a sample of 20 families the efficacy of a preventive family intervention for families in which the mother was depressed was assessed (Beardslee, Salt, Porterfield, Rothberg, van de Velde, Swatling, Hoke, Moilanen, & Whelock, 1993). This intervention focused on education of the entire family about the mother's depression, increased communication, and an understanding of the perspective of the child. The outcome of the study revealed significantly more communication with children regarding the mothers depression. Further, those who underwent treatment also showed significantly greater understanding of their children's experience of the mother's depression.

Thus, in families where there are both conflict and maternal depression, clinicians are faced with maternal internalizing problems, marital discord, and parenting difficulties. Unfortunately for treatment efforts, those mothers who are depressed would likely be the most in need of parent training but are also the most likely to drop out of a parent training program (Forehand et al., 1984). In a review of parent training literature Griest and Forehand (1982) found that mothers presenting to clinicians for child behavior problems had high levels of both depression and anxiety. It has previously been discussed that marital therapy will lead to decreases in both maternal depression and marital discord. When there are parenting difficulties, it will be necessary to separately address these issues. Fortunately, research has shown reductions in maternal depression, anxiety, somatic complaints, and anger following parent

training (Forehand, Wells, & Griest, 1980; Patterson & Fleishman, 1979). The marital discord should be dealt with separately, though, as marital discord has not been found to decrease following parent training (Griest & Forehand, 1982).

Thus, the most important point of intervention when there is violence in the home is at the level of maternal parenting practices. It is these parenting practices that are directly and strongly related to children's internalizing and externalizing problems. Further, prior research in this area has also shown that when children's behavior problems are ameliorated, maternal psychological functioning improves (Forehand & Fleischman, 1979). Given the nonspecific nature of maternal psychological distress, programs to help children of battered women could more easily systematize a treatment program focusing on commonalities in the types of maladaptive parenting practices used by battered mothers, rather than on the diffuse psychological problems experienced by these mothers.

### *Limitations*

Some limitations of the present study should be mentioned. Given the cross-sectional nature of the data, it can not be surmised that the direction of the paths represent causal direction. Without knowledge of temporal precedence, it is not appropriate to say that interparental violence causes maternal depression, that maternal depression causes greater use of maladaptive parenting practices, or that maladaptive parenting practices lead to children's internalizing and externalizing problems. It could be that women who are depressed are more likely to choose mates who are prone to interparental violence. It could be that being ineffectual as a parent, evinced by the use of less adaptive parenting practices, leads mothers to become depressed. Lastly, it could be that children's internalizing and externalizing problems tax mothers to the point that they begin to use maladaptive parenting practices. Future research in this area should

examine the longitudinal relationship between interparental violence, maternal depression, maternal parenting practices, and children's internalizing and externalizing problems. The results of this study thus provide only preliminary support for this model that would be bolstered by data showing temporal precedence and thus stronger support for causal relations between interparental violence, maternal psychological problems, maternal maladaptive parenting, and children's internalizing and externalizing problems.

### *Summary and Conclusions*

The results of this study revealed a complex relationship between interparental violence, maternal depression, and children's internalizing and externalizing problems consisting of both direct and indirect effects. The indirect pathway initially hypothesized whereby interparental violence affects children's internalizing and externalizing problems through increases in maternal depression and maternal maladaptive parenting practices accounted for a significant amount of the variance in children's internalizing and externalizing problems. There were also, though, small direct effects of interparental violence and moderate direct effects of maternal depression on children's internalizing and externalizing problems. Thus, the present study revealed that indirect effects are important in explaining the effects of interparental violence on children. The indirect pathway most strongly supported by the present study is from interparental violence to maternal depression and from maternal depression directly to children's internalizing and externalizing problems. The second indirect pathway also includes the effects of maternal depression on maternal use of maladaptive parenting practices that lead directly to increases in children's internalizing and externalizing problems.



## REFERENCES

- Achenbach, T. M. (1991). *Integrative guide for the 1991 CBCL 14-18, YSR, and TRF Profiles*. Burlington: University of Vermont Department of Psychiatry.
- Arbuckle, J. L. (1999). *Amos user's guide: Version 4.01*. Chicago, IL: Smallwaters Corporation.
- Beach, S. R., Smith, D. A., & Fincham, F. D. (1994). Marital interventions for depression: Empirical foundation and future prospects. *Applied and Preventive Psychology, 3*, 233-250.
- Beardslee, W. R., Salt, P., Porterfield, K., Rothberg, P. C., van de Velde, P., Swatling, S., Hoke, L., Moilanen, D., & Wheelock, I. (1993). Comparison of preventive interventions for families with parental affective disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 2, 254-264.
- Bremner, J. D., Southwick, S. M., Johnson, D. R., Yehuda, R., Charney, D. S. (1993). Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam veterans. *American Journal of Psychiatry, 150*, 235-240.
- Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In Bollen, K. A. & Long, J. S. (Eds.) *Testing Structural Equation Models* (pp. 136-162). Newbury Park, CA: Sage.
- Buehler, C., Anthony, C., Krishnakumar, A., Stone, G., Gerard, J., & Pemberton, S. (1997). Interparental conflict and youth problem behaviors: A Meta-Analysis. *Journal of Child and Family Studies, 6*, 2, 233-247.
- Buri, J. R. (1991). Parental authority questionnaire. *Journal of Personality Assessment, 57*, 1, 110-119.

- Byrne, B. (1994). *Structural Equation Modeling with EQS and EQS/Windows: Basic Concepts, Applications, and Programming*. Thousand Oaks, CA: Sage.
- Chen, F., Bollen, K. A., Paxton, P., Curran, P. J., Kirby, J. B. (2001). Improper solutions in structural equation models: Causes, consequences, and strategies. *Sociological Methods and Research*, 29, 4, 468-508.
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2000). The efficacy of toddler-parent psychotherapy for fostering cognitive development in offspring of depressed mothers. *Journal of Abnormal Child Psychology*, 28, 2, 135-146.
- Cohen, J. A. & Mannarino, A. P. (1998). Factors that mediate treatment outcome of sexually abused preschool children: Six and 12-month follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 44-51.
- Corsilles, A. (1994). Note: No drop policies in the prosecution of domestic violence cases: guarantee to action or dangerous solution. *Fordham Law Review*, 63, 853-881.
- Criss, M. M., Petit, G. S., Bates, J. E., Dodge, K. A., & Lapp, A. L. (2002). Family adversity, positive peer relationships, and children externalizing behavior: A longitudinal perspective on risk and resilience. *Child Development*, 73, 4, 1220-1237.
- Crook, T., Raskin, A., & Eliot, J. (1981). Parent-child relationships and adult depression. *Child Development*, 52, 930-957.
- Cummings, E. M. (1994). Marital conflict and children's functioning. *Social Development*, 3, 1, 16-35.
- Cummings, E. M. (1998). Stress and coping approaches and research: The impact of marital conflict on children. *Journal of Aggression, Maltreatment & Trauma*, 2, 1, 31-50.
- Cummings, E. M. & Davies, P. T. (2002). Effects of marital conflict on children: recent advances

- and emerging themes in process-oriented research. *Journal of Child Psychology and Psychiatry*, 43, 1, 31-63.
- Cummings, E. M., Davies, P. T., & Simpson, K. (1994). Marital conflict, gender, and children's appraisals and coping efficacy as mediators of child adjustment. *Journal of Family Psychology*, 8, 2, 141-149.
- Cummings, E. M., Zahn-Waxler, C., & Radke-Yarrow, M. (1981). Young children's responses to expressions of anger and affection by others in the family. *Child Development*, 52, 1274-1282.
- Cummings, E. M., Vogel, D., Cummings, J., & El-Sheikh, M. (1989). Children's responses to different forms of expression of anger between adults. *Child Development*, 60, 1392-1404.
- Cummings, J. S., Pellegrini, D. S., Notarius, C. I., & Cummings, E. M. (1989). Children's responses to angry adult behavior as a function of marital distress and history of interparental hostility. *Child Development*, 60, 1035-1043.
- Darling, N. & Steinberg, L. (1993). Parenting style as context. An integrative review. *Psychological Bulletin*, 13, 3, 487-496.
- Davies, P. T., & Cummings, E. M. (1998). Exploring children's emotional security as a mediator of the link between marital relations and child adjustment. *Child Development*, 69, 1, 124-139.
- Davies, P. T., Myers, R. L., & Cummings, M. E. (1996). Responses of children and adolescents to marital conflict scenarios as a function of the emotionality of conflict endings. *Merrill-Palmer Quarterly*, 42, 1, 1-21.

- Davis, L. & Siegel, L. J. (2000). Posttraumatic stress disorder in children and adolescents: A review and analysis. *Clinical Child and Family Psychology Review*, 3, 135-154.
- Daviss, W. B., Mooney, D., Racusin, R., Ford, J. D., Fleischer, A., & McHugo, G. J. (2000) Predicting posttraumatic stress after hospitalization for pediatric injury. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 576-583.
- Derogatis, L. R. (1975). *Brief Symptom Inventory*. Baltimore, MD: Clinical Psychometric Research.
- Derogatis, L. R. (1993). *BSI Brief Symptom Inventory. Administration, Scoring, and Procedures Manual (4<sup>th</sup> ed)*. Minneapolis, MN: National Computer Systems.
- Derogatis, L. R. (2000). Symptom Checklist 90 - Revised in *Handbook of Psychiatric Measures* (pp. 81-84). American Psychiatric Association.
- Downey, G. & Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin*, 108, 1, 50-76.
- Duncan, R., Saunders, B., Kilpatrick, D., Hanson, R., & Resnick, H. (1996). Childhood psychical assault as a risk factor for PTSD, depression, and substance abuse. *American Journal of Orthopsychiatry*, 66 (3), 437-448.
- Durant, R. H., Getts, A., Cadenhead, C., Emans, S. J., & Woods, E. R., (1995). Exposure to violence and victimization and depression, hopelessness, and purpose in life among adolescents living in and around public housing. *Developmental and Behavior Pediatrics*, 16, 4, 233-237.

- Fauber, R., Forehand, R., Thomas, A. M., & Wierson, M. (1990). A mediational model of the impact of marital conflict on adolescent adjustment in intact and divorced families: The role of disrupted parenting. *Child Development*, 61, 1112-1123.
- Finch, F. D., Beach, R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science*, 8, 5, 351-357.
- Finch, J. F. & Graziano, W. G. (2001). Predicting depression from temperament, personality, and patterns of social relations. *Journal of Personality*, 69, 1, 27-55.
- Fitzpatrick, K. M. & Boldizar, J. P. (1993). The prevalence and consequences of exposure to violence among African-American youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 424-431.
- Forehand, R., Furey, W. M., & McMahon, R. J. (1981). The role of maternal distress in a parent training program to modify child non-compliance. *Behavior Psychotherapy*, 12, 93-108.
- Forehand, R., Wells, K. C., & Griest, D. L. (1980). An examination of the social validity of a parent training program. *Behavior Therapy*, 11, 488-502.
- Free, K., Alechina, I., & Zahn-Waxler, C. (1996). Affective language between depressed mothers and their children: The potential impact of psychotherapy. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 6, 783-791.
- Frick, P. J., Christian, R. E., & Wootton, J. M. (1999). Age trends in the association between parenting practices and conduct problems. *Behavior Modification*, 23, 1, 106-128.
- Goodman, S. H., Adamson, L. B., Riniti, J., & Cole, S. (1994). Mothers' expressed attitudes: Associations with maternal depression and children's self-esteem and psychopathology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 9, 1265-1275

- Griest, D. L., & Forehand, R. (1982). How can I get any parent training done with all these other problems going on?: The role of family variables in child behavior therapy. *Child & Family Behavior Therapy*, 4, 1, 73-80.
- Groth-Marnat, G. (1990). *The handbook of psychological assessment (2nd ed.)*. New York: Wiley.
- Grync, J. H. (1998). Children's appraisals of interparental conflict: Situational and contextual influences. *Journal of Family Psychology*, 12, 3, 437-453.
- Grync, J. H. & Fincham, F. D. (1993). Children's appraisals of marital conflict: Initial investigations of the cognitive-contextual framework. *Child Development*, 64, 215-230
- Grync, J. H., Fincham, F. D., Jouriles, E. N., & McDonald, R. (2000). Interparental conflict and child adjustment: Testing the mediational role of appraisals in the cognitive-contextual framework. *Child Development*, 71, 6, 1648-1661.
- Hann, D. M., Osofsky, J. D., Barnard, K. E., & Leonard, G. (1994). Dyadic affect regulations in three caregiving environments. *American Journal of Orthopsychiatry*, 64, 2, 263-269.
- Hart, J., Gunnar, M., & Cicchetti, D. (1995). Salivary cortisol in maltreated children: Evidence of relations between neuroendocrine activity and social competence. *Development and Psychopathology*, 7, 11-26.
- Hazzard, A., Christensen, A., & Margolin, G. (1983). Children's perceptions of parental behaviors. *Journal of Abnormal Child Psychology*, 11, 1, 49-60.
- Hennessy, K. D., Rabideau, G. J., Cicchetti, D., & Cummings, E. M. (1994). Responses of physically abused and nonabused children to different forms of interadult anger. *Child Development*, 65, 815-828.

- Holden, G. W., & Ritchie, K. L. (1991). Linking extreme marital discord, child rearing, and child behavior problems: Evidence from battered women. *Child Development, 62*, 311-327.
- Jaffe, P., Wolfe, D. A., Wilson, S., & Zak, L. (1985). Critical issues in the assessment of children's adjustment to witnessing family violence. *Canada's Mental Health*, December, 15-19.
- Jaffe, P., Wolfe, D. A., Wilson, S., & Zak, L. (1986). Emotional and physical health problems of battered women. *Canadian Journal of Psychiatry, 31*, 625-629.
- Jouriles, E. N., McDonald, R., Norwood, W. D., Ware, H. S., Spiller, L. C., & Swank, P. R. (1998). Knives, guns, and interparent violence: Relations with child behavior problems. *Journal of Family Psychology, 12*, 2, 178-194.
- Jouriles, E. N., Norwood, W. D., McDonald, R., Vincent, J. P., & Mahoney, A. (1996). Physical violence and other forms of marital aggression: Links with children's behavior problems. *Journal of Family Psychology, 10*, 2, 223-234.
- Kilpatrick, D. G. (1989). *National Women's Study PTSD module*. Unpublished manuscript, National Crime Victims Research and Treatment Center, Medical University of South Carolina, Charleston.
- Kline, R. B. (1998). *Principles and Practice of Structural Equation Modeling*. New York: Guilford.
- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. *Acta Paedopsychiatria, 46*, 305-315.

Kramer, R. A., Warner, V., Olfson, M., Ebanks, C. M., Chaput, F., & Weissman, M. M. (1998).

General medical problems among the offspring of depressed parents: A 10-year follow up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 6, 602-612.

Lanzi, R. G., Pascoe, J. M., Keltner, B., & Ramey, S. L. (1999). Correlates of maternal

depressive symptoms in a national head start program sample. *Archives of Pediatrics & Adolescent Medicine*, 153, 8, 801-807.

Levendosky, A. & Graham-Bermann, S. (1998). The moderating effect of parenting stress on children's adjustment in women-abusing families.

Lieb, R., Wittchen, H., Hofler, M., Fuetsch, M., Stein, M. B., & Merikangas, K. R. (2000).

Parental psychopathology, parenting styles, and the risk of social phobia in offspring. *Archives of General Psychiatry*, 57, 9, 859-869.

Linares, L. O., Heeren, T., Bronfman, E., Zuckerman, B., Augustyn, M., & Tronick, E. (2001). A

mediational model for the impact of exposure to community violence on early child behavior problems. *Child Development*, 72, 639-652.

Livingston, R., Lawson, L., & Jones, J. G. (1993). Predictors of self-reported psychopathology in

children abused repeatedly by a parent. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 5, 948-954.

Loehlin, J. C. (1992) *Latent Variable Models: an introduction to factor,*

*path, and structural analysis*. 2<sup>nd</sup> Ed. New Jersey: Lawrence Erlbaum Associates.



- Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R., & Almqvist, F. (2001). Longitudinal study of maternal depressive symptoms and child well-being. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 12, 1367-1374.
- Maccoby, E. E. (2000). Parenting and its effects on children: On reading and misreading behavior genetics, *Annual Review of Psychology*, 51, 1-27.
- Maccoby, E. E. & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In Mussen, P. H. (Ed.) Handbook of Child Psychology, Vol 4, 4<sup>th</sup> edition, (pp. 1-102), New York: John Wiley & Sons.
- Mahoney, A., Boggio, R. M., & Jouriles, E. N. (1996). Effects of verbal marital conflict on subsequent mother-son interactions in a child clinical sample. *Journal of Clinical Child Psychology*, 25, 3, 262-271.
- Marchand, J. F. & Hock, E. (1998). The relation of problem behaviors in preschool children to depressive symptoms in mothers and fathers. *Journal of Genetic Psychology*, 159, 3, 353-367.
- Margolin, G., Christensen, A., John, R. S. (1996). The continuance and spillover of everyday tensions in distressed and nondistressed families. *Journal of Family Psychology*, 10, 3, 304-321.
- Maughan, A. & Cicchetti, D. (2002). Impact of child maltreatment and interadult violence on children's emotional regulation abilities and socioemotional adjustment. *Child Development*, 73, 5, 1525-1542.
- McCloskey, L. A., Figueredo, A. J., & Koss, M. P. (1995). The effects of systemic family violence on children's mental health. *Child Development*, 66, 1239-1261.

- McCloskey, L. A. & Walker, M. (2000). Posttraumatic stress in children exposed to family violence and single-event trauma. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 1, 108-115.
- McLennan, J. D., & Kotelchuck, M. (2000). Parental prevention practices for young children in the context of maternal depression. *Pediatrics*, 105, 5, 1090-1095.
- Metsapelto, R., Pulkkinen, L., & Poikkeus, A. (2001). A search for parenting style: A cross-situational analysis of parental behavior. *Genetic, Social, and General Psychology Monographs*, 127, 2, 169-192.
- Morlan, K. K., & Tan, S. Y. (1998). Comparison of the Brief Psychiatric Rating Scale and the Brief Symptom Inventory. *Journal of Clinical Psychology*, 54, 7, 885-895.
- Morris, A. S., Silk, J. S., Steinberg, L., Sessa, F. M., Avenevoli, S., & Essex, M. J. (2002). Temperamental vulnerability and negative parenting as interacting predictors of child adjustment. *Journal of Marriage and Family*, 64, 461-471.
- Nix, R. L., Pinderhughes, E. E., Dodge, K. A., Bates, J. E., Pettit, G. S., & McFadyen-Ketchum, S. A. (1999). The relation between mothers' hostile attribution tendencies and children's externalizing behavior problems: The mediating role of mothers' harsh discipline practices. *Child Development*, 70, 4, 896-909.
- Nomura, Y., Wickramaratne, P. J., Warner, V., Mufson, L., & Weissman, M. M. (2002). Family discord, parental depression, and psychopathology in offspring: Ten-year follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 4, 402-409.
- O'Leary, K. D., Christian, J. L., & Mendell, N. R. (1994). A closer look at the link between marital discord and depressive symptomatology. *Journal of Social and Clinical Psychology*, 13, 1, 33-41.

- Patterson, G. R. & Fleischman, M. J. (1979). Maintenance of treatment effects: Some considerations concerning family systems and follow-up data. *Behavior Therapy*, 10, 168-185.
- Perry, B. D. (1999). Post-traumatic stress disorders in children and adolescents. *Current Opinions in Pediatrics*, 11.
- Pfefferbaum, B. (1997). Posttraumatic stress disorder in children: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 1503-1512.
- Pollak, S., Cichetti, D., & Korman, R. (1998). Stress, memory, and emotion: Developmental considerations from the study of child maltreatment. *Development and Psychopathology*, 10, 811-828.
- Porter, B. & O'Leary, K. D. (1980). Marital discord and childhood behavior problems. *Journal of Abnormal Child Psychology*, 8, 287-295.
- Quay, H. B. & Peterson, D. R. (1983). *Interim manual for the revised behavior problem checklist*. Unpublished manuscript, University of Miami.
- Radke-Yarrow, M., Nottelmann, E., Belmont, B., & Welsh, J. D. (1993). Affective interactions of depressed and nondepressed mothers and their children. *Journal of Abnormal Child Psychology*, 21, 6, 683-696.
- Rutter, M., & Quinton, D. (1984). Parental psychiatric disorder: effects on children. *Psychological Medicine*, 14, 853-880.
- Scheeringa, M. S., Wright, M. J., Hunt, J. P., Zeanah, C. H. (2002). A prospective study of posttraumatic stress disorder in 0-18 year-old acute injury victims. *Unpublished manuscript*.

- Scheeringa M. S. & Zeanah, C. H. (1995). Symptom expression and trauma variables in children under 48 months of age. *Infant Mental Health Journal*, 16, 259-270.
- Scheeringa M. S. & Zeanah, C. H. (2001). A relational perspective on PTSD in early childhood. *Journal of Traumatic Stress*, 14, 799-815.
- Schmaling, K. B., Whisman, M. A., Fruzzetti, A. E., & Truax, P. (1991). Identifying areas of marital conflict: Interactional Behaviors Associated with depression. *Journal of Family Psychology*, 5, 2, 145-157.
- Seifer, R., Dickstein, S., Sameroff, A., Magee, K. D., & Hayden, L. C. (2001). Infant mental health and variability of parental depression symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 12, 1375-1382.
- Seiner, S. H. & Gelfand, D. M. (1995). Effects of mothers simulated withdrawal and depressed affect on mother-toddler interactions. *Child Development*, 66, 1519-1528.
- Shalev, A. Y. (1996). Stress versus traumatic stress: From acute homeostatic reactions to chronic psychopathology. In van der Kolk, B. A., McFarlane, A. C., Weisaeth, L. (Eds.), *Traumatic Stress*, (pp. 77-101). New York: The Guilford Press.
- Shaw, D. S. , Keenan, K., Vondra, J. I., Delliquadri, E., & Giovannelli, J. (1997). Antecedents of preschool children's internalizing problems: A longitudinal study of low-income families. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 12, 1760-1767.
- Shelton, K. K., Frick, P. J., & Wootton, J., (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, 25, 3, 317-329.
- Shifflett-Simpson, K., & Cummings, E. M. (1996). Mixed message resolution and children's responses to interadult conflict. *Child Development*, 67, 437-448.

- Solantaus-Simula, T., Punamaki, R., & Beardslee, W. R. (2002). Children's responses to low parental mood I: Balancing between active empathy, overinvolvement, indifference, and avoidance. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 3, 278-286.
- Solantaus-Simula, T., Punamaki, R., & Beardslee, W. R. (2002a). Children's responses to low parental mood II: Associations with family perceptions of parenting styles and child distress. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 3, 287-295.
- Stark, K. D., Schmidt, K. L. & Joiner, T. E. (1996). Cognitive triad: Relationship to depressive symptoms, parents' cognitive triad, and perceived parental messages. *Journal of Abnormal Child Psychology*, 24, 615-631.
- Straus, M. (1990). The Conflict Tactics Scale and its critics: An evaluation and new data on validity and reliability. In M. A. Straus & R. J. Gelles (Eds.) *Physical violence in American families* (pp. 49-74). New Brunswick: Transaction.
- Straus, M. (1990a). Injury and frequency of assault and the "representative sample fallacy" in measuring wife beating and child abuse. In Straus, M. H., & Gelles, R. J. (Eds) *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families*. New Brunswick, NJ: Transaction Press, pp. 75-90.
- Straus, M. (1992). Children as witnesses to marital violence: A risk factor for lifelong problems among a nationally representative sample of American men and women. *Report of the twenty-third Ross Roundtable*, Columbus, OH: Ross Laboratories, pp. 98-108.

- Straus, M. & Hamby, S. L. (1997). Measuring physical and psychological maltreatment of children with the conflict tactics scales. In Kaufman Kantor, G. & Jasinski, J. (Eds) *Out of the darkness: Contemporary perspectives on family violence*. Thousand Oaks, CA: Sage.
- Steinberg, L., Elmen, J. D., & Mounts, N. S. (1989). Authoritative parenting, psychosocial maturity, and academic success among adolescents. *Child Development*, 60, 1424-1436.
- Stevens, J. (1996). *Applied Multivariate Statistics for the Social Sciences*. Mahwah, New Jersey: Erlbaum.
- Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In Bollen, K. A. & Long, J. S. (Eds.) *Testing Structural Equation Models* (pp. 10-39). Newbury Park, CA: Sage.
- Tarullo, L. B., DeMulder, E. K., Martinez, P. E., & Radke-Yarrow, M. (1994). Dialogues with preadolescents and adolescents: Mother-child interaction patterns in affectively ill and well dyads. *Journal of Abnormal Child Psychology*, 22, 1, 33-54.
- Tronick, E. Z. & Gianino, A. F. (1986). The transmission of maternal disturbance to the infant. *New Directions for Child Development*, 34, 5-11.
- Vissing, Y. M., Strauss, M. A., Gelles, R. J., & Harrop, J. W. (1991). Verbal aggression by parents and psychosocial problems of children. *Child Abuse & Neglect*, 15, 223-238.
- Wasserman, G. A., Miller, L. S., Pinner, E., & Jaramillo, B. (1996). Parenting predictors of early conduct problems in urban, high-risk boys. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 9, 1227-1236.
- Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*, 156, 1223-1229.

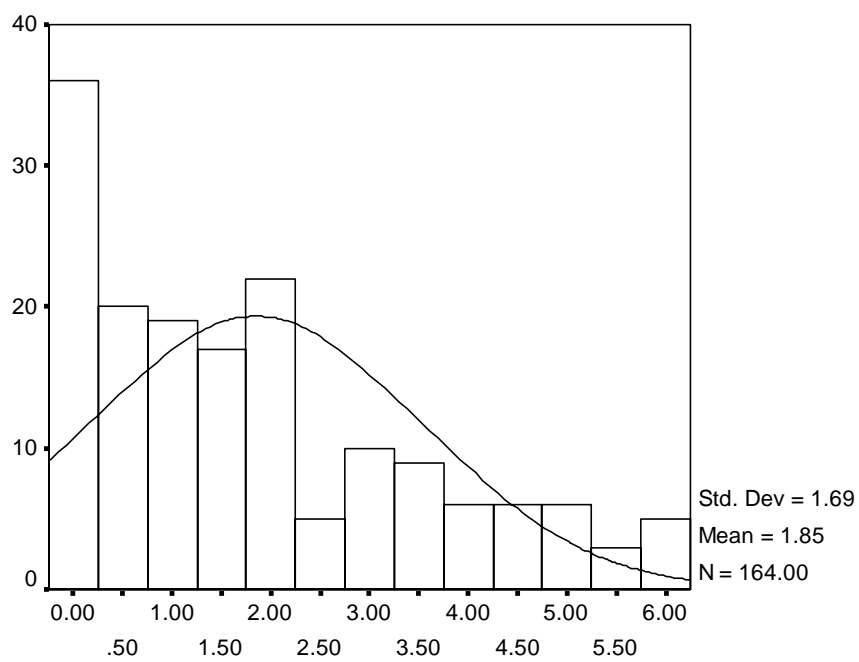
- West, S. G., Finch, John, F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problem and remedies. In Hoyle, R. H. (Eds.) *Structural Equation Modeling: Concepts, Issues, and Applications*, Lexington, KY: University of Kentucky, pp. 56-75.
- Wright, C. A., George, T. P., Burke, R., Gelfand, D. M., Teti, D. M. (2000). Early maternal depression and children's adjustment to school. *Child Study Journal*, 30, 3, 153-168.

**APPENDIX A**

**GRAPHICAL DEPICTIONS OF CHILD REPORT  
OF INTERPARENTAL VIOLENCE**



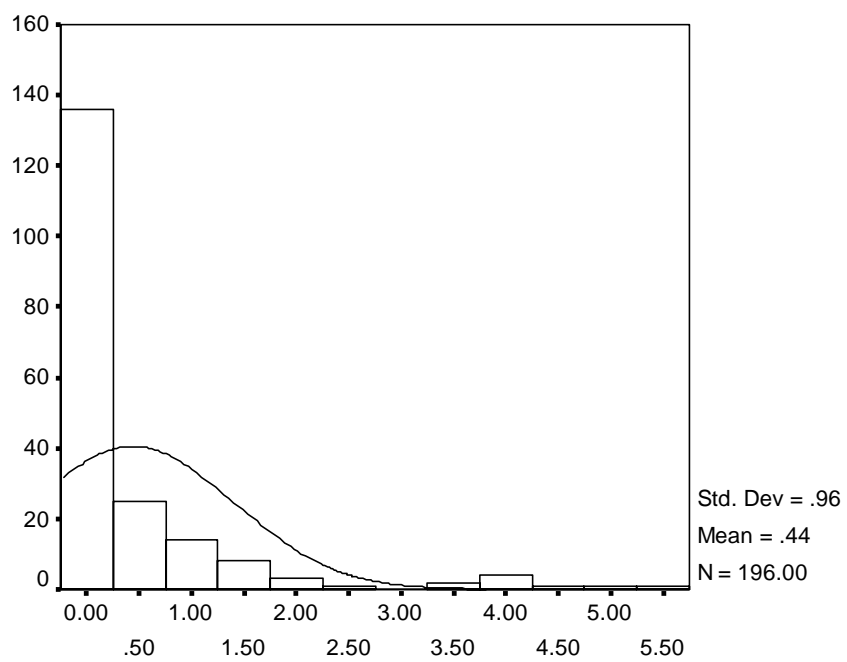
Figure A1 Distribution of Child Reported Interparental Violence for Battered Group



CVIO

Skewness .86

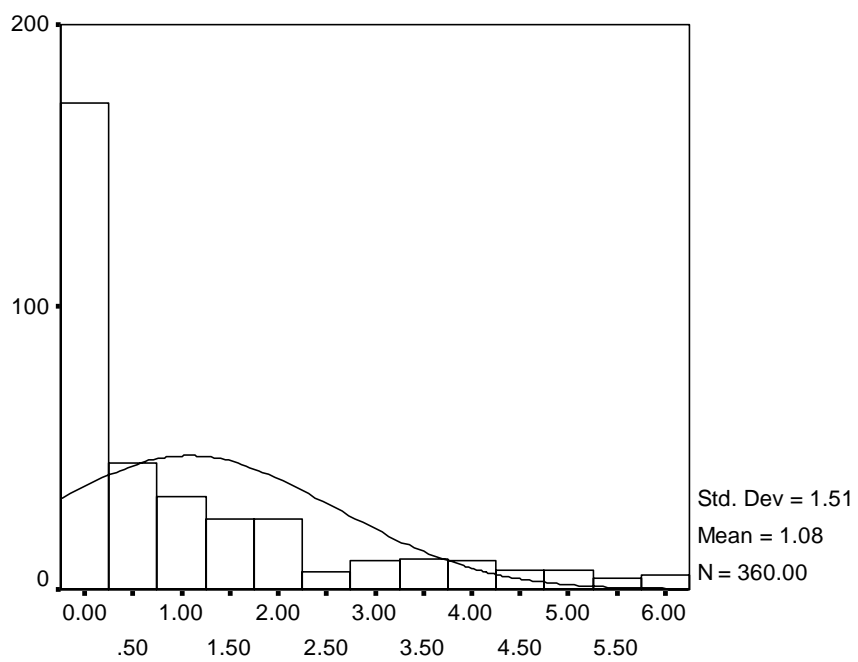
Figure A2 Distribution of Child Reported Interparental Violence for Nonbattered Group



CVIO

Skewness 3.21

Figure A3 Distribution of Child Reported Interparental Violence for Entire Sample



CVIO

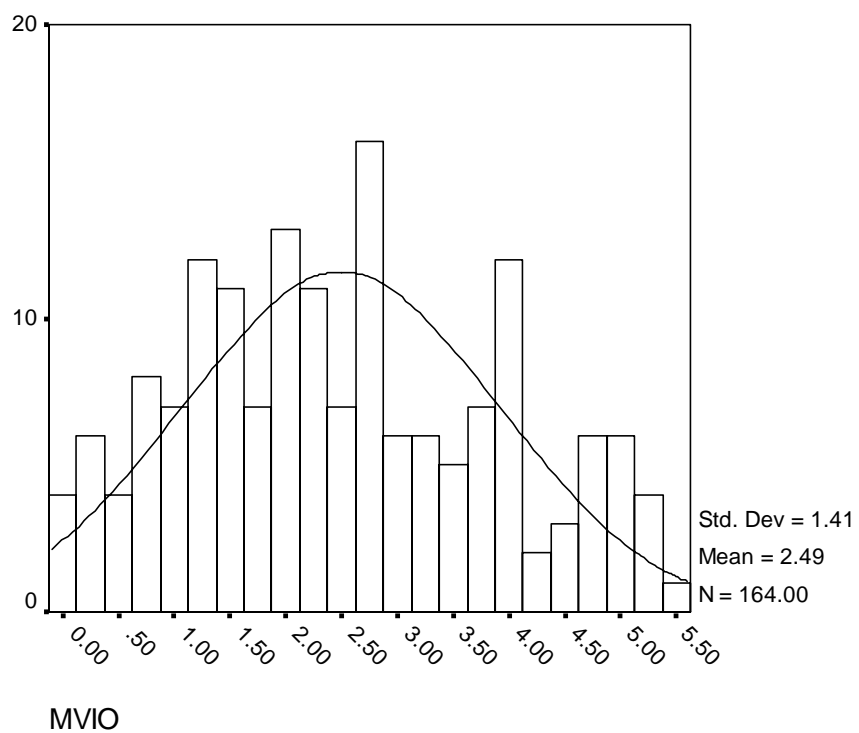
Skewness 1.58

**APPENDIX B**

**GRAPHICAL DEPICTIONS OF MATERNAL REPORT**

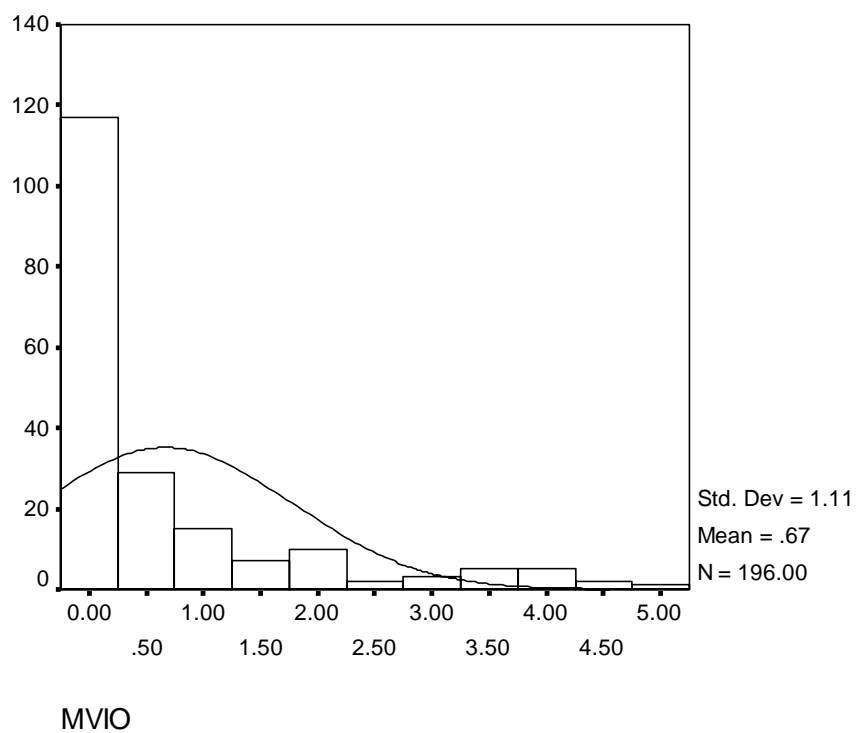
**OF INTERPARENTAL VIOLENCE**

Figure B1. Distribution of Mother Reported Interparental Violence for Battered Group



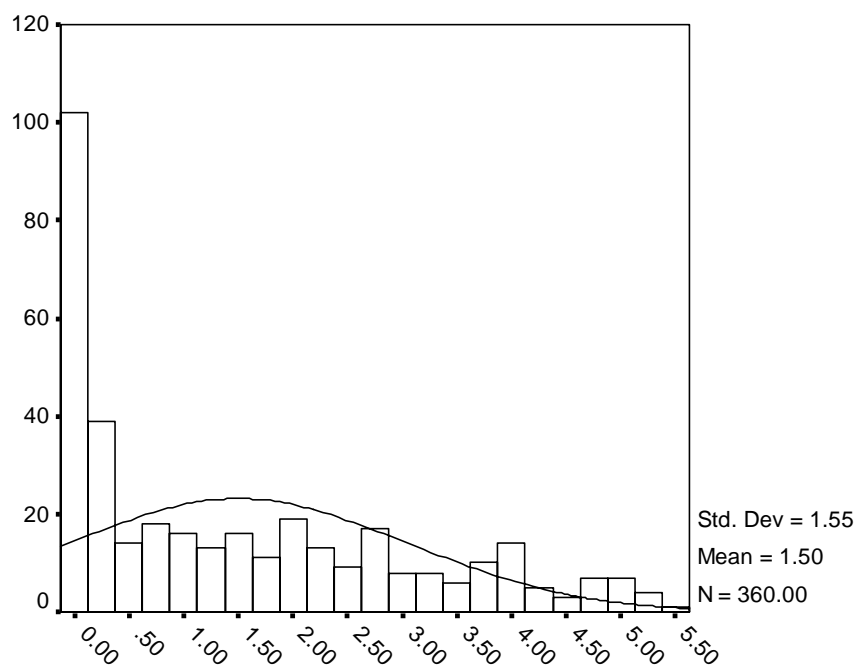
Skewness .26

Figure B2 Distribution of Mother Reported Interparental Violence for Nonbattered Group



Skewness 2.09

Figure B3 Distribution of Mother Reported Interparental Violence for Entire Sample



MVIO

Skewness .82

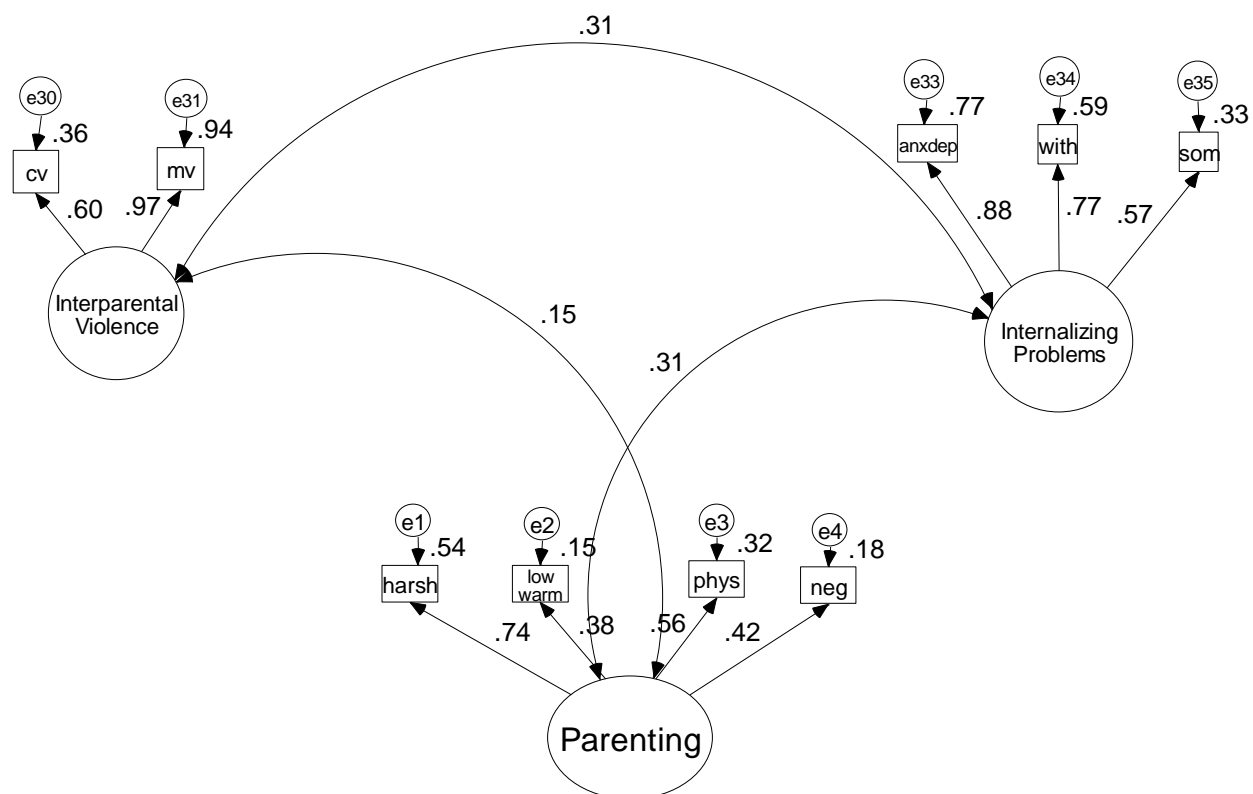
**APPENDIX C**

**MEASUREMENT MODELS FOR CHILDREN'S**

**INTERNALIZING PROBLEMS**



Figure C1. Measurement Model for Internalizing Problems

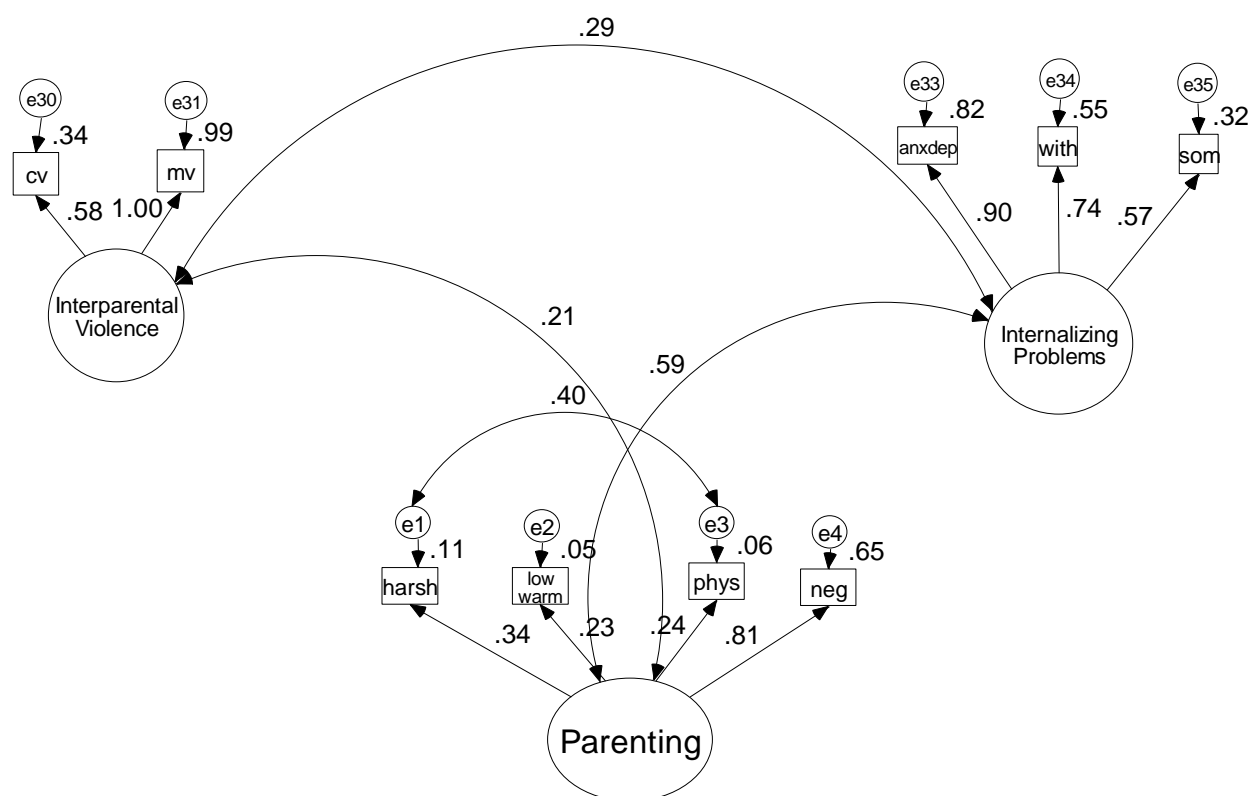


Chi-square 94.81 degrees of freedom 24  $p < .001$

Comparative Fit Index (CFI) .90

Root Mean Square Error of Approximation (RMSEA) .09

Figure C2. Modified Measurement Model for Internalizing Problems



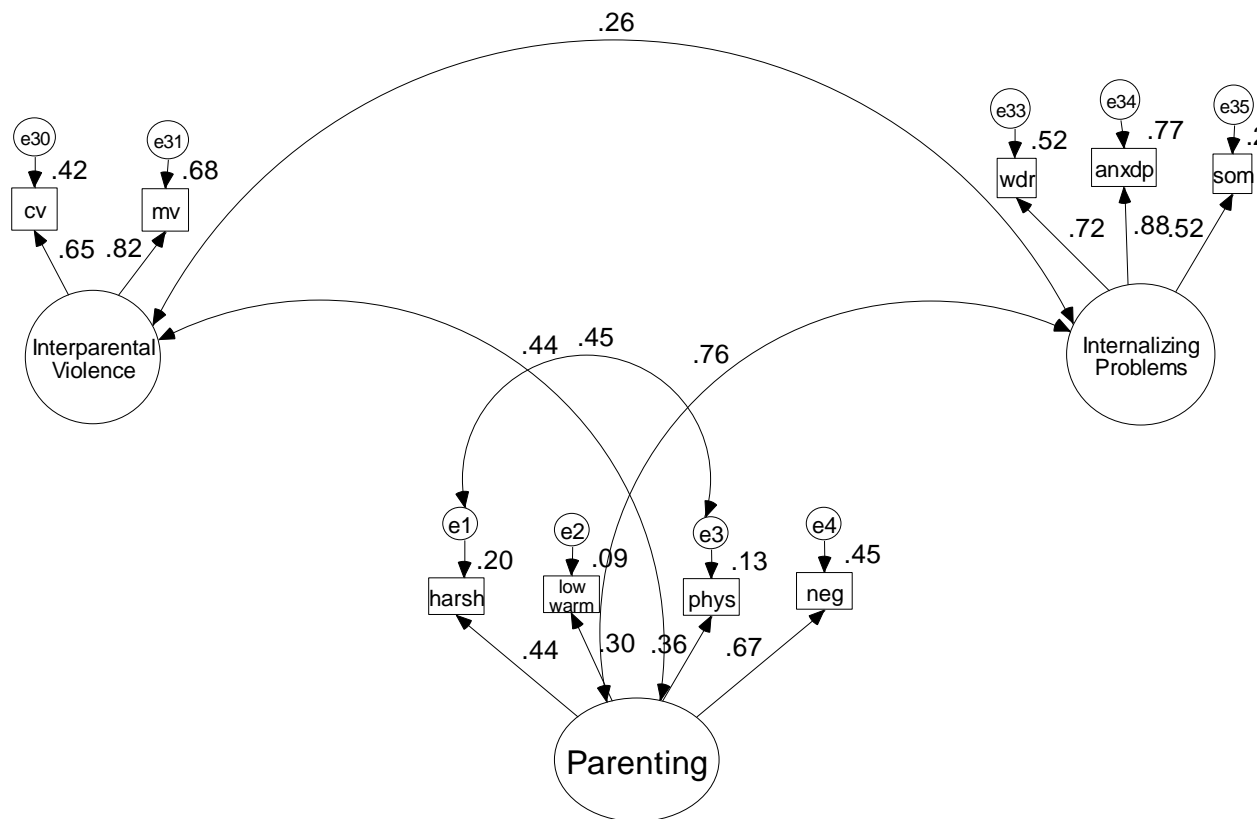

---

Chi-square 53.60 degrees of freedom 23  $p < .001$

Comparative Fit Index (CFI) .96

Root Mean Square Error of Approximation (RMSEA) .06

Figure C3. Measurement Model for Internalizing Problems – Nonbattered Group Only

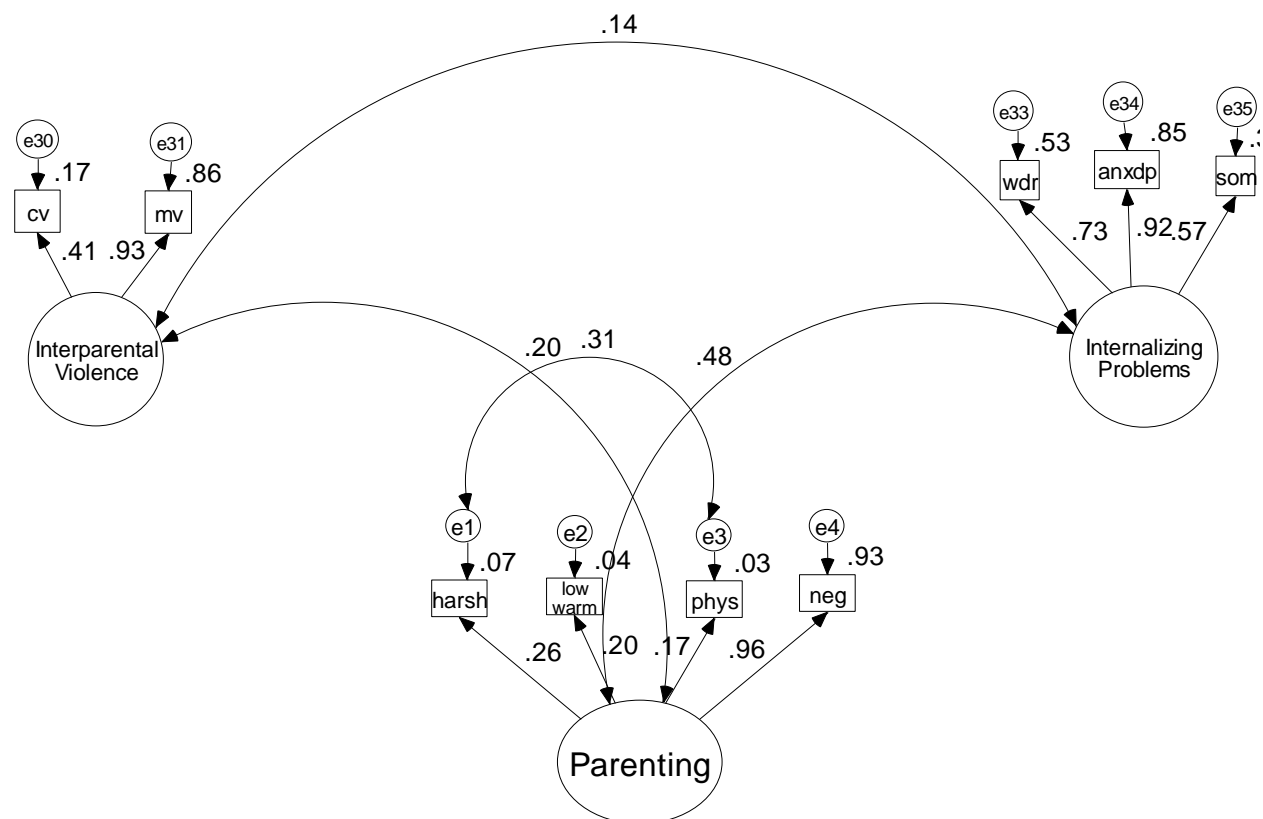


Chi-square 26.58 degrees of freedom 23 (not significant)

Comparative Fit Index (CFI) .99

Root Mean Square Error of Approximation (RMSEA) .03

Figure C4. Measurement Model for Internalizing Problems – Battered Group Only




---

Chi-square 42.91 degrees of freedom 23  $p < .01$

Comparative Fit Index (CFI) .92

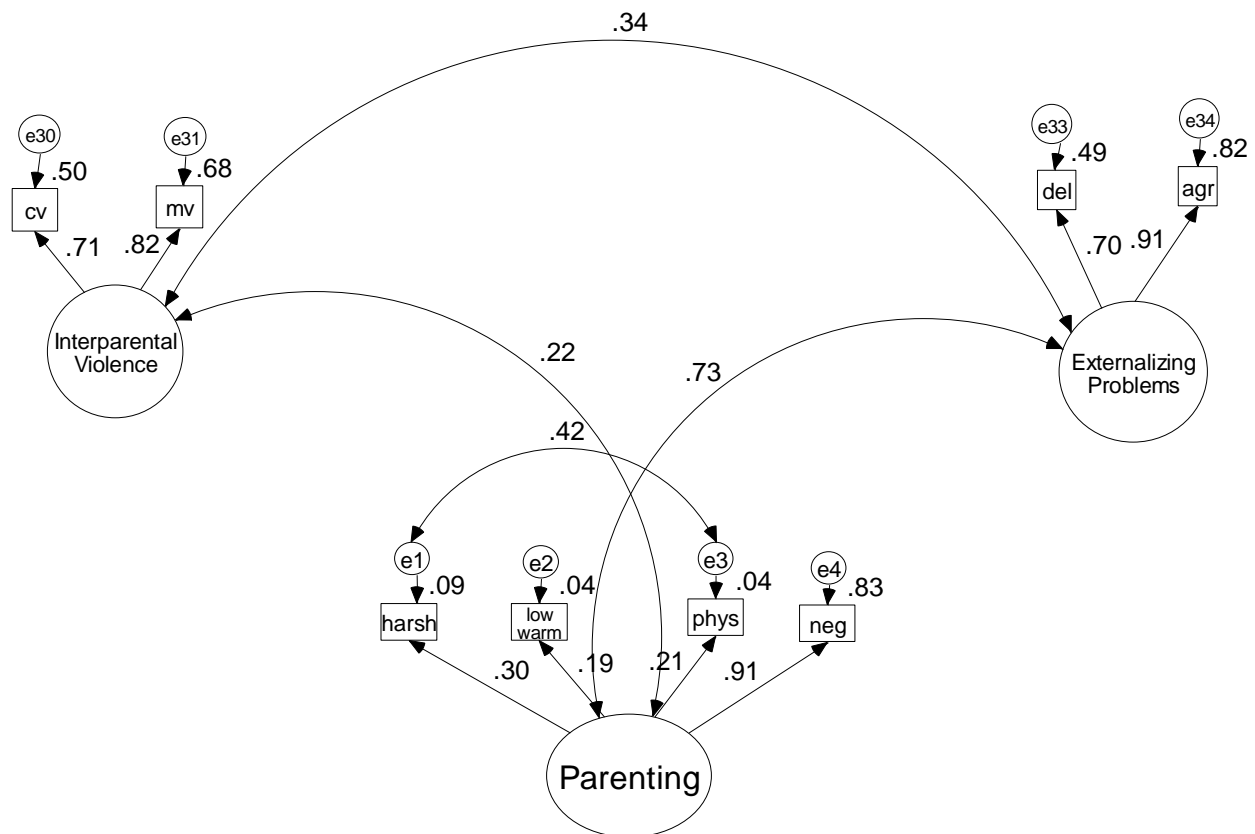
Root Mean Square Error of Approximation (RMSEA) .07

**APPENDIX D**

**MEASUREMENT MODELS FOR CHILDREN'S**

**EXTERNALIZING PROBLEMS**

Figure D1. Measurement Model for Externalizing Problems



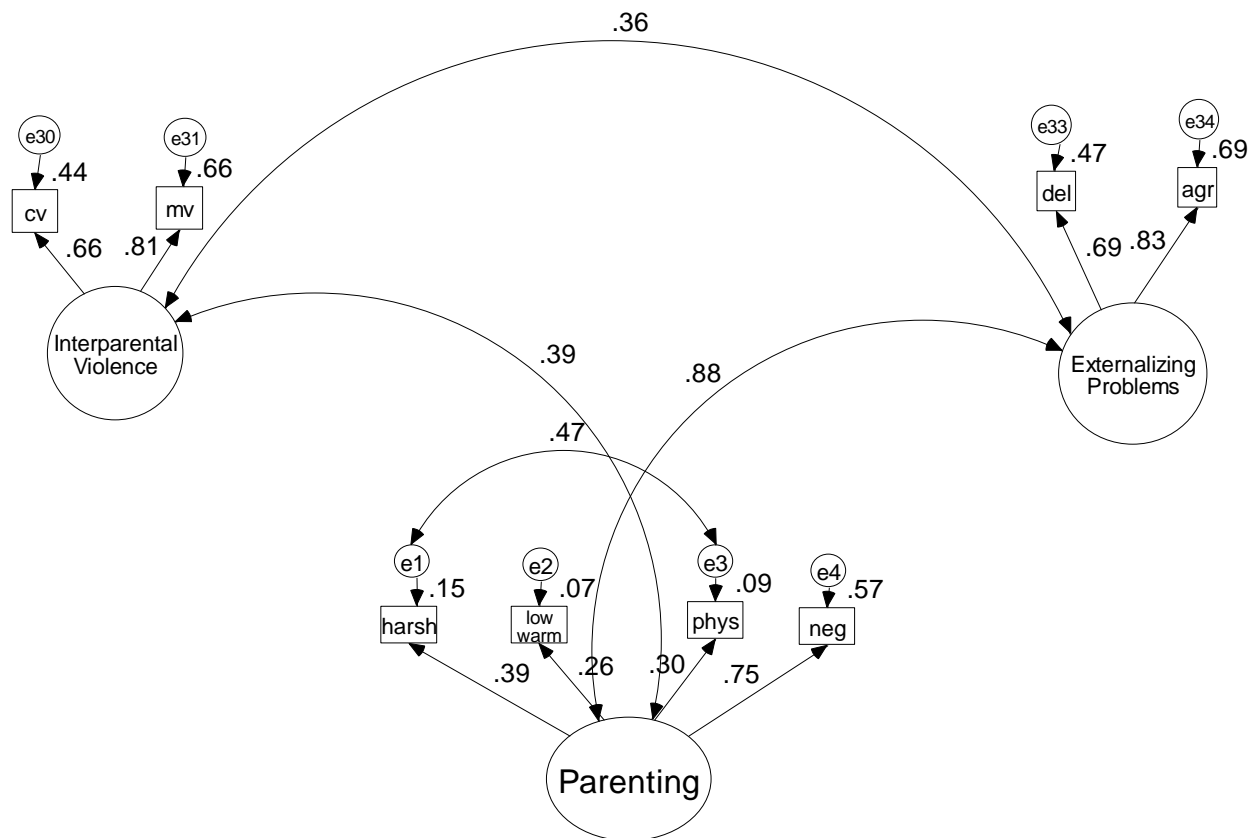

---

Chi-square 47.56 degrees of freedom 16  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .07

Figure D2. Measurement Model for Externalizing Problems – Nonbattered Group Only

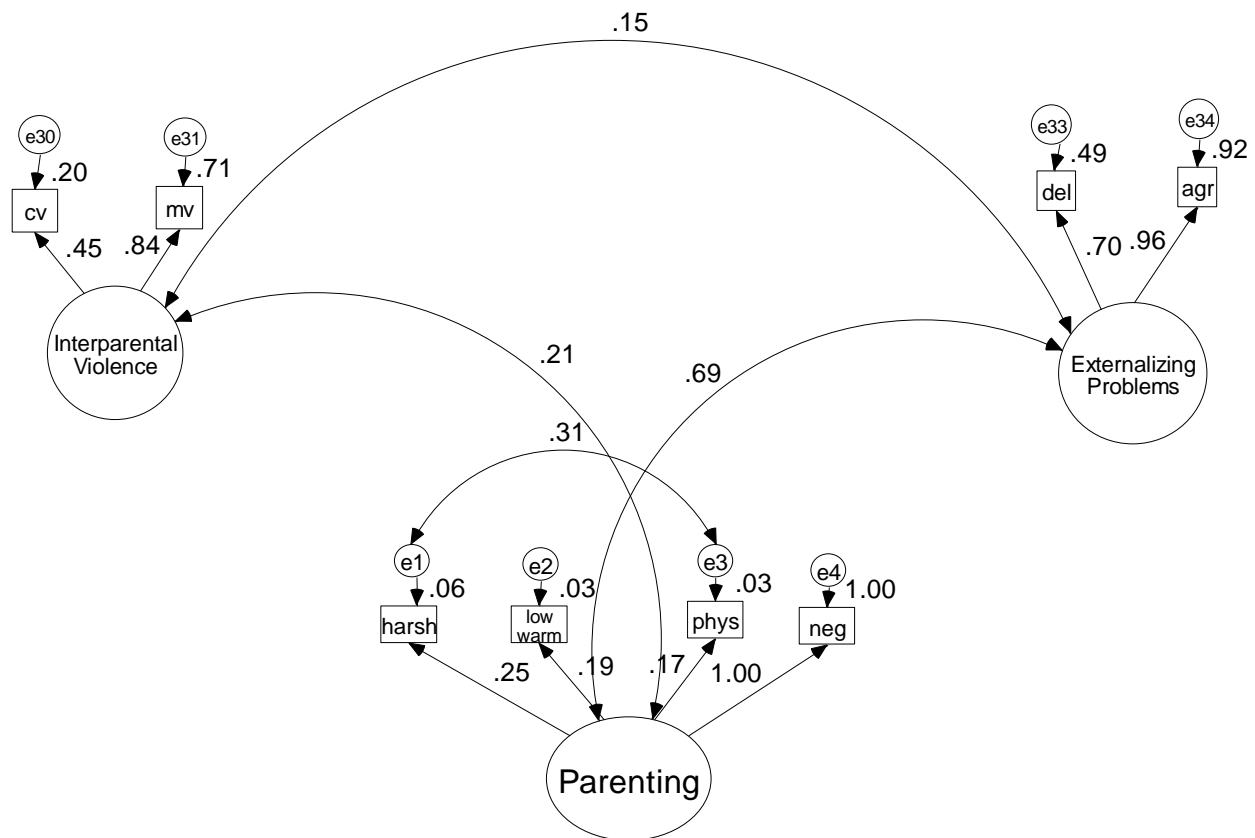


Chi-square 27.12 degrees of freedom 16  $p=.04$

Comparative Fit Index (CFI) .97

Root Mean Square Error of Approximation (RMSEA) .06

Figure D3. Measurement Model for Externalizing Problems – Battered Group Only



Chi-square 30.37 degrees of freedom 17  $p < .05$

Comparative Fit Index (CFI) .95

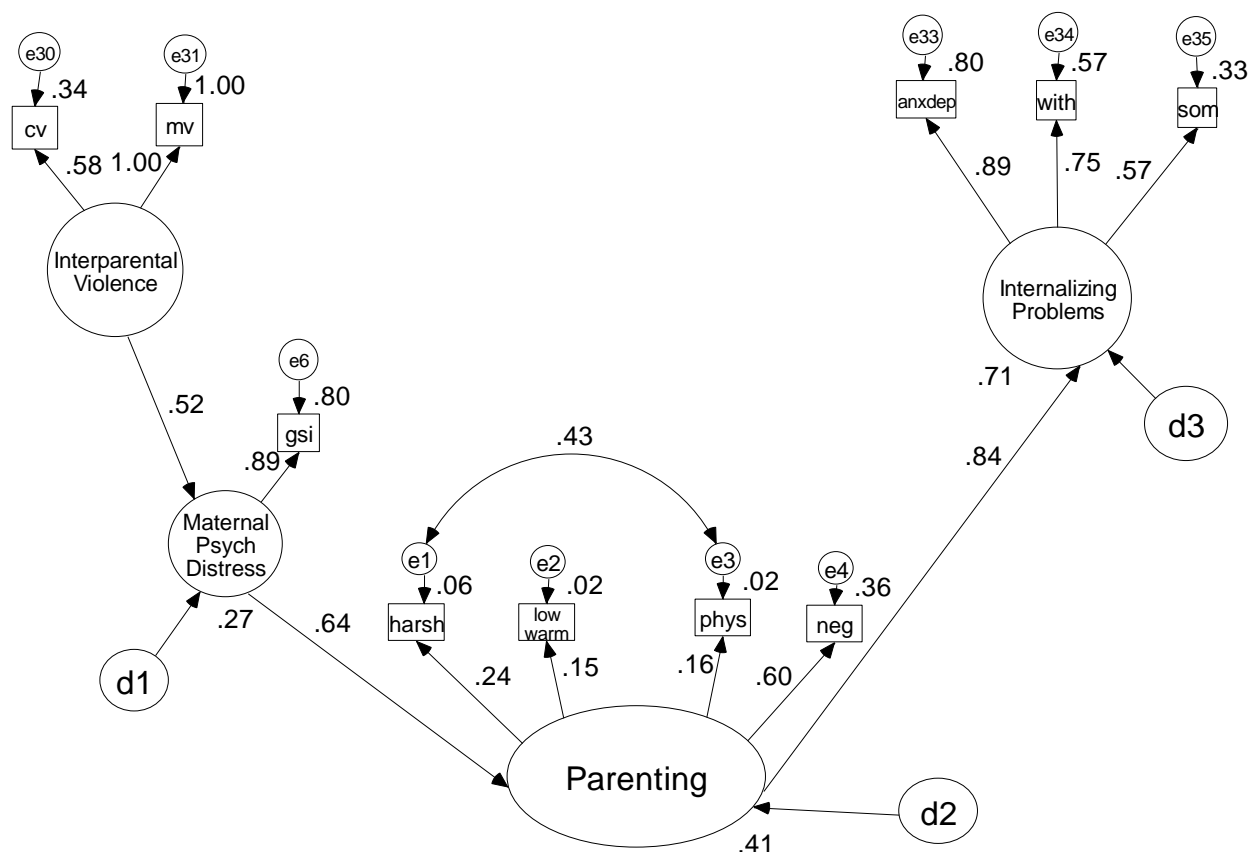
Root Mean Square Error of Approximation (RMSEA) .07

In order to prevent an improper solution, it was necessary to fix the variance of the error term associated with maternal report of negative parenting to zero.



**APPENDIX E**  
**ALTERNATIVE MODELS**

Figure E1. Structural Model Internalizing Problems & Maternal Psychological Distress



Chi-square 86.53 degrees of freedom 32  $p < .001$

Comparative Fit Index (CFI) .94

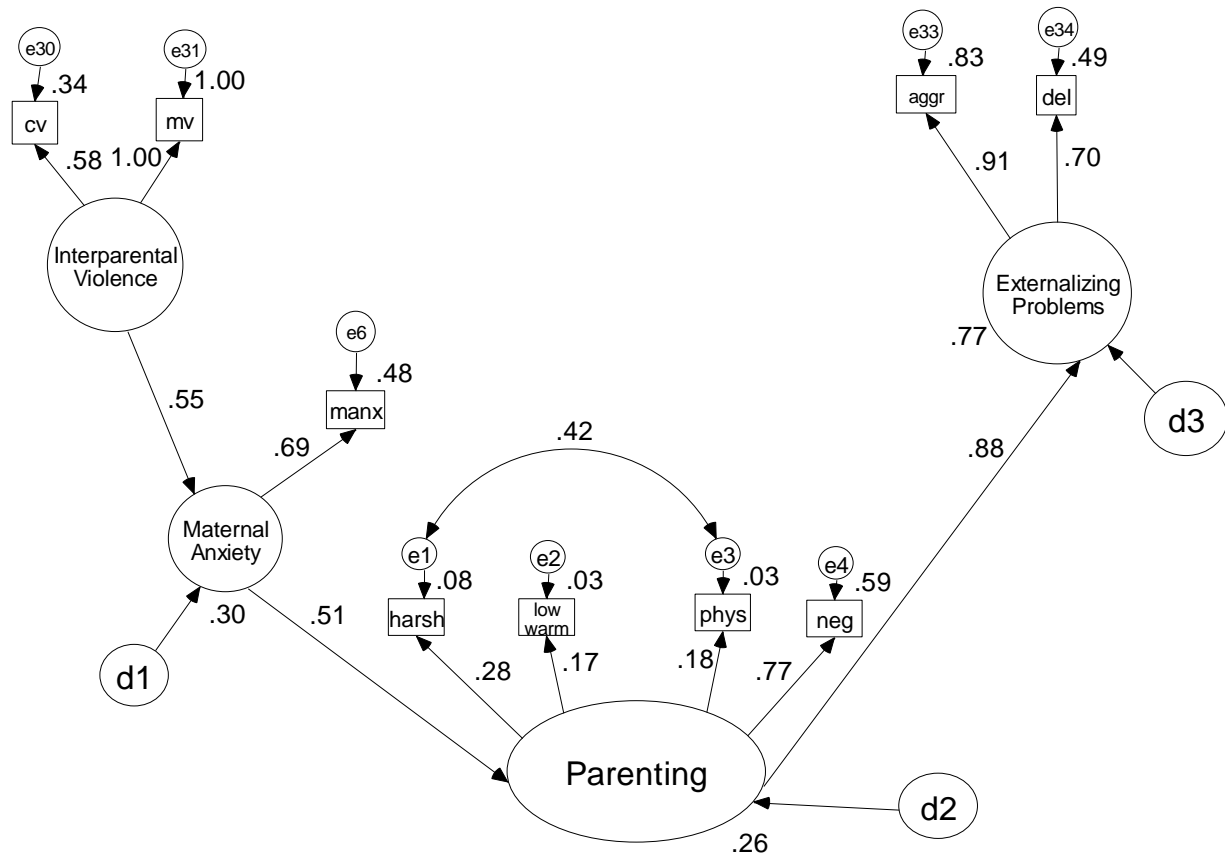
Root Mean Square Error of Approximation (RMSEA) .07

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution





Figure E4. Structural Model Externalizing Problems &amp; Maternal Anxiety



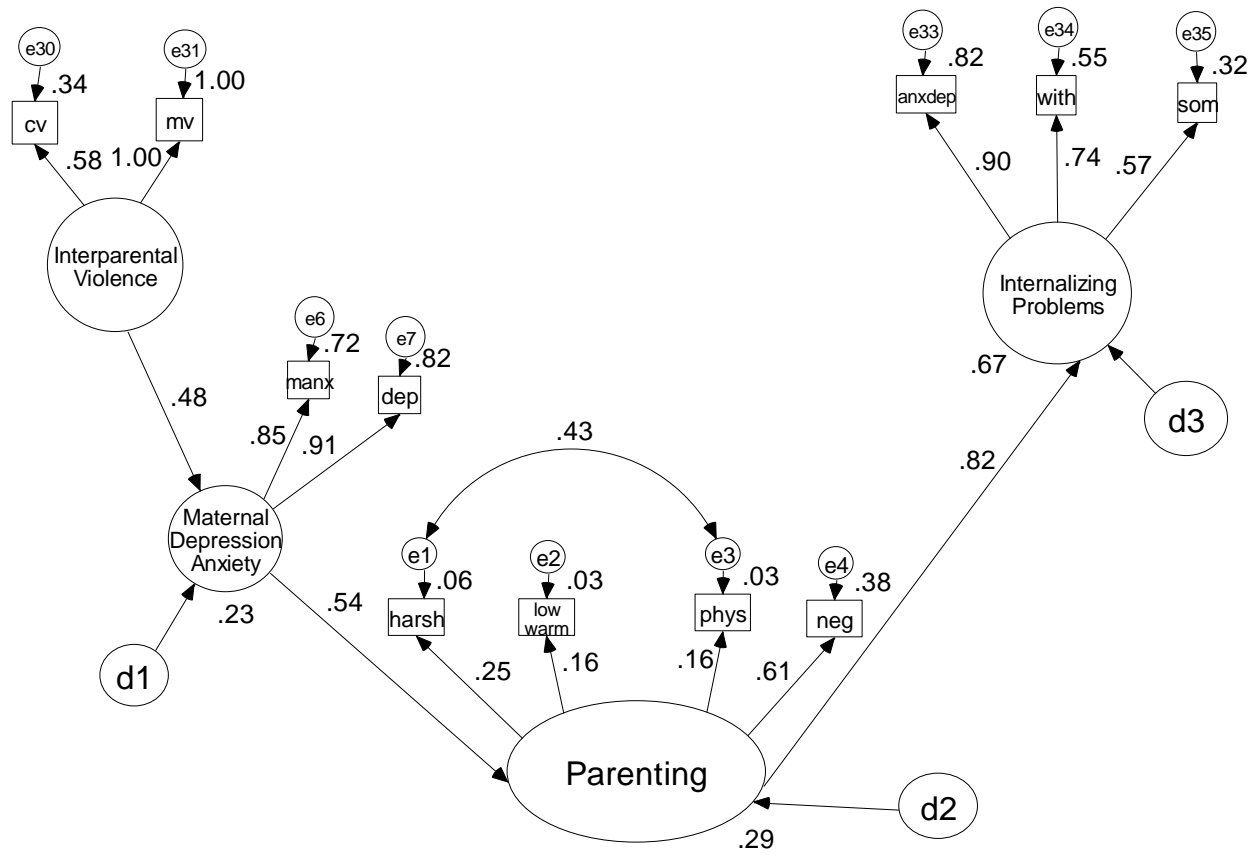
Chi-square 79.01 degrees of freedom 24  $p < .001$

Comparative Fit Index (CFI) .93

Root Mean Square Error of Approximation (RMSEA) .08

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

Figure E5. Structural Model Internalizing Problems, Maternal Anxiety and Depression



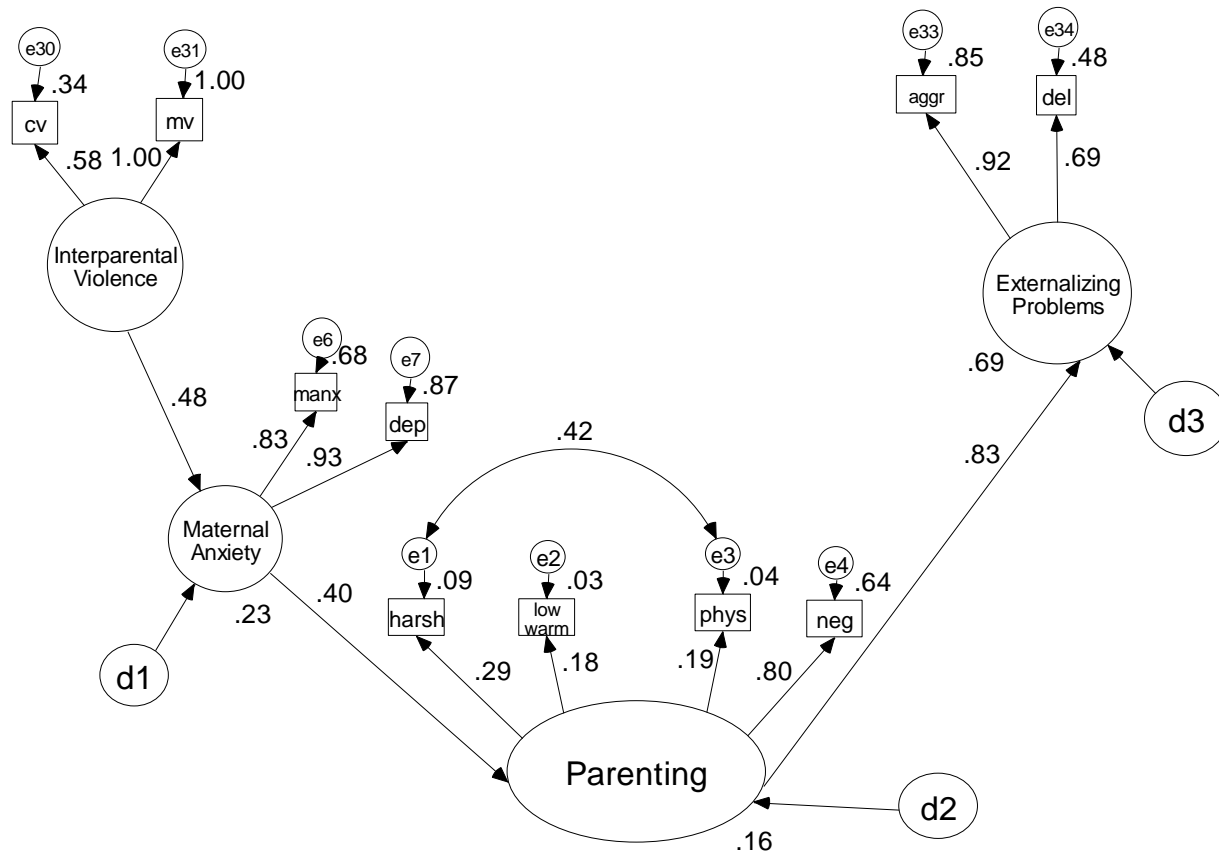
Chi-square 110.18 degrees of freedom 41  $p < .001$

Comparative Fit Index (CFI) .94

Root Mean Square Error of Approximation (RMSEA) .07

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

Figure E6. Structural Model Externalizing Problems, Maternal Anxiety and Depression



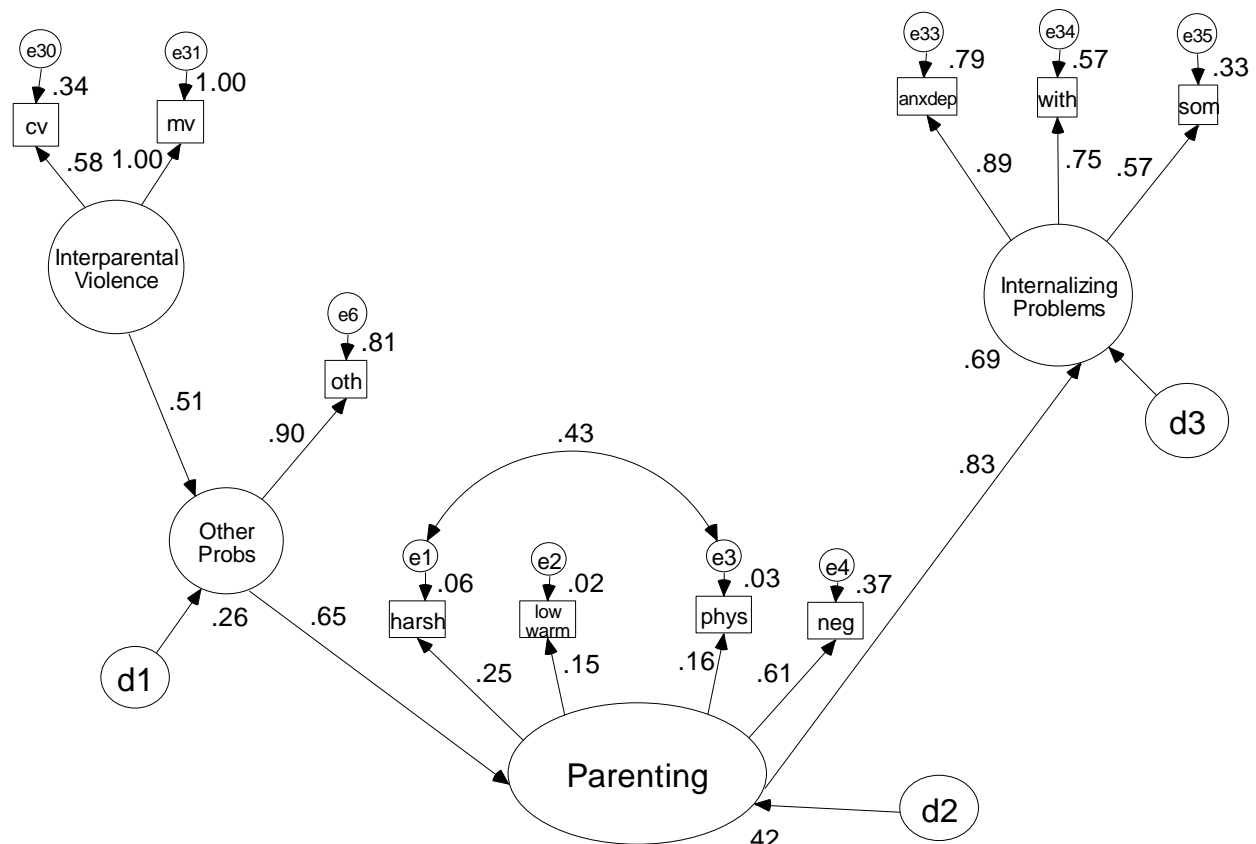
Chi-square 89.04 degrees of freedom 32  $p < .001$

Comparative Fit Index (CFI) .95

Root Mean Square Error of Approximation (RMSEA) .07

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

**Figure E7. Structural Model Internalizing Problems, Maternal Other Psychological Distress**



Chi-square 85.73 degrees of freedom 32  $p < .001$

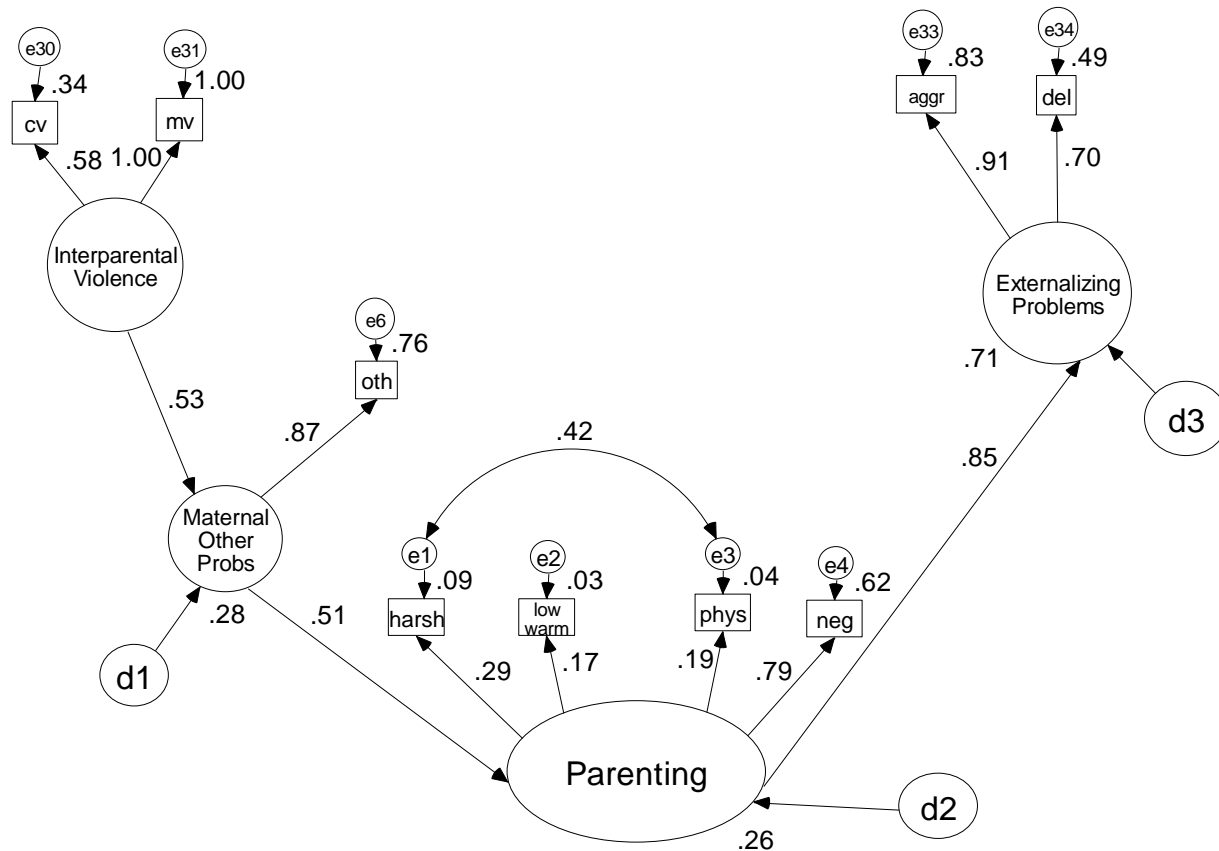
Comparative Fit Index (CFI) .94

Root Mean Square Error of Approximation (RMSEA) .07

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution



**Figure E8. Structural Model Externalizing Problems, Maternal Other Psychological Distress**



Chi-square 68.82 degrees of freedom 24  $p < .001$

Comparative Fit Index (CFI) .94

Root Mean Square Error of Approximation (RMSEA) .07

Note: It was necessary to fix the variance of the error term associated with maternal report of interparental violence to zero in order to prevent an improper solution

## VITA

Christopher Dehon is a native of New Orleans where he grew up with his five brothers and sisters. He graduated from Loyola University with a B. A. in both Psychology and Sociology. He received his masters' degree from the University of New Orleans in Applied Developmental Psychology in 2002. He is married to Kimberly Dehon. They have one beautiful child, Chloe. During his time at the University of New Orleans he has worked on the Young Child Trauma Project at Tulane University, as a data analyst for the Office of Mental Health, as a therapist at Tulane University Medical Center, and as a psychology extern at Southeast Louisiana State Hospital on the Developmental Neuropsychiatric Unit.