

**STRESS, MATERNAL DISTRESS, AND CHILD ADJUSTMENT FOLLOWING  
IMMIGRATION:  
EXPLORING THE BUFFERING ROLE OF SOCIAL SUPPORT**

by

**KATHRYN HELEN SHORT**

**Bachelor of Arts, McMaster University, 1986  
Master of Arts, University of British Columbia, 1990**

**A THESIS SUBMITTED IN PARTIAL FULFILMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY**

in

**THE FACULTY OF GRADUATE STUDIES**

**Department of Psychology**

**We accept this thesis as conforming  
to the required standard**

**THE UNIVERSITY OF BRITISH COLUMBIA**

**September, 1995**

**©Kathryn Helen Short, 1995**

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

(Signature)

Department of Psychology

The University of British Columbia  
Vancouver, Canada

Date 7 September 1995

## ABSTRACT

Immigration is typically deemed a stressful life event. For adults, the experience of uprooting and settling in a new country has been associated with elevated rates of psychological distress. Basic North American parenting models would predict that immigrant children are also at risk for developing adjustment problems; both as a direct function of immigration stress, and indirectly through the influence of parent distress and disrupted parenting behavior. Although some empirical studies support this contention, many researchers have described lower or equivalent rates of problems in immigrant, relative to nonimmigrant, children. In the present study, in an attempt to understand why it is that some children develop problems following migration whereas others remain resilient, a model that highlights the role of potential protective variables was empirically tested. New immigrant mothers from Hong Kong completed a series of questionnaires regarding extrafamilial stress, personal distress, social support, and child behavior. Another adult familiar with the child's adjustment also completed a child behavior questionnaire. Consistent with the Basic Model, results of Moderated Multiple Regression analyses revealed that extrafamilial stress and maternal distress were significant predictors of child behavior problems. However, no support was found for the Moderator Model. When the sample was split along gender lines and the analysis was conducted for boys only, findings were consistent with the Moderator Model in that the relationship between extrafamilial stress and child behavior problems was weaker in the presence of higher levels of social support. At the same time, however, it was determined that the relationship between maternal distress and boys' behavior was stronger at higher levels of

support. There were no significant interaction effects when the analysis was conducted exclusively with families of girls. Support for the Moderator Model was more straightforward at the level of adult functioning. In keeping with findings in the North American literature, the relationship between stress and maternal distress was moderated by social support in this immigrant sample. Cultural explanations for these findings were discussed. An integrative model that follows from the results of this study was presented as a heuristic to guide future study in this area.

## TABLE OF CONTENTS

<b>Abstract</b>	<b>ii</b>
<b>Table of Contents</b>	<b>iv</b>
<b>List of Tables</b>	<b>vii</b>
<b>List of Figures</b>	<b>viii</b>
<b>Acknowledgement</b>	<b>ix</b>
<b>Dedication</b>	<b>x</b>
<b>Introduction</b>	<b>1</b>
<b>Overview</b>	<b>1</b>
<b>Basic North American Model of Family Stress and Parent-Child Outcomes</b>	<b>3</b>
- Description of Contemporary Models	3
- Operationalization of the Basic Model	7
- Empirical Support for Links within the Basic Model	11
<b>Consideration of the Basic Model Amongst Immigrant Families</b>	<b>17</b>
- Empirical Support for the Basic Model from the Immigrant Literature	17
<b>Resiliency and Moderator Variables</b>	<b>23</b>
- Resilient Children	23
<b>Proposed Immigrant Parent-Child Moderator Model</b>	<b>25</b>
- Description of the Moderator Model	25
- Empirical Support for Links within the Moderator Model	27
- Additional and Exploratory Links in the Moderator Model	32
<b>Summary of the Proposed Parent-Child Moderator Model and Research Hypotheses</b>	<b>36</b>
- Summary of the Proposed Model	36
- Hypotheses	37

<b>Method</b>	<b>39</b>
<b>Sample</b>	<b>39</b>
- Inclusion Criteria	39
- Recruitment of Participants	42
- Sample Size	44
- Description of the Sample	44
<b>Procedures</b>	<b>47</b>
- Research Assistants	47
- Preparation of the Questionnaire Package	47
- Data Collection Procedures	51
<b>Measurement</b>	<b>53</b>
- Mothers' Questionnaire Package	53
- Childrens' Interview	63
- Global Ratings	65
<b>Results</b>	<b>66</b>
<b>Primary Analyses regarding the Moderator Model</b>	<b>66</b>
- Summary Statistics	66
- Data Aggregation and Transformation	73
- Primary Regression Analyses	76
<b>Secondary Analyses regarding the Proposed Model</b>	<b>92</b>
- Social Competence	92
- Stress-Distress Relationship	96
<b>Summary</b>	<b>99</b>
<b>Discussion</b>	<b>101</b>
<b>Review of Findings</b>	<b>101</b>
- Summary Statistics	101
- Moderated Multiple Regression Analysis on Child Behavior Problems	102
- Summary of Primary Analysis	108
- Moderated Multiple Regression Analysis on Child Social Competence	110
- Moderated Multiple Regression Analysis on Maternal Distress	112

<b>Methodological Issues</b>	<b>114</b>
- Reliance on Maternal Perceptions of Self and Family	114
- Reliance on a Correlational Design	118
- Underreporting of Psychological Concerns	119
- Translation of, and Modifications to, Standard Instruments	121
- The Challenges of Cross-Cultural Research	122
 <b>Applications</b>	 <b>123</b>
 <b>Future Directions</b>	 <b>124</b>
 <b>Conclusions</b>	 <b>126</b>
 <b>Footnotes</b>	 <b>127</b>
 <b>Bibliography</b>	 <b>129</b>
 <b>Appendix A. Family Information Questionnaire.</b>	 <b>154</b>
<b>Appendix B. Immigration Stress Scale.</b>	<b>155</b>
<b>Appendix C. Parent Support Scale.</b>	<b>157</b>
<b>Appendix D. Stress Thermometer.</b>	<b>158</b>
<b>Appendix E. Scale of Children's Stress.</b>	<b>159</b>
<b>Appendix F. Mother Global Ratings.</b>	<b>160</b>
<b>Appendix G. Observer-Child Rating Scales.</b>	<b>161</b>

## LIST OF TABLES

Table 1. Demographic Information for Study Participants.	45
Table 2. Means, Standard Deviations, and Ranges for Variables in the Moderator Model.	67
Table 3. Zero-order Correlations amongst Variables in the Moderator Model.	71
Table 4. Intercorrelations amongst Composite Measures.	75
Table 5. Summary of Hierarchical Multiple Regression Analysis predicting Child Behavior Problems.	81
Table 6. Regressions of Maternal Distress on Child Behavior Problems at Lower, Medium, and Higher Levels of Social Support.	83
Table 7. Separate Regressions on Child Behavior Problems; Stress, Support, and Stress x Support, and Distress, Support, and Distress x Support.	86
Table 8. Means, Standard Deviations, and Ranges for all Variables in the Moderator Model, by Child Gender.	88
Table 9. Intercorrelations amongst Variables in the Moderator Model for Families of Boys and for Families of Girls.	90
Table 10. Hierarchical Multiple Regression Analyses Predicting Child Behavior Problems, Conducted by Child Gender.	91
Table 11. Intercorrelations amongst Variables in the Moderator Model Predicting Child Social Competence.	94
Table 12. Hierarchical Multiple Regression Analysis Predicting Child Social Competence.	95
Table 13. Summary of Hierarchical Multiple Regression Analyses Predicting Child Social Competence, Conducted by Child Gender.	97
Table 14. Hierarchical Multiple Regression Analysis Predicting Maternal Distress.	99



## LIST OF FIGURES

Figure 1. Basic Model of Stress and Parent-Child Behavior.	7
Figure 2. Parent-Child Moderator Model.	27
Figure 3. Scatterplots Depicting the Relationship between Distress and Child Behavior Problems at Lower, Medium, and Higher Levels of Support.	84
Figure 4. Proposed Model Integrating the Moderating Role of Social Support, and the Mediating Role of Maternal Distress, in Predicting Child Behavior.	114

## ACKNOWLEDGMENT

This work has come to fruition only through the support and assistance of many individuals. Foremost, I would like to extend my thanks to Charlotte Johnston, my supervisor and mentor throughout my graduate school career. It is an understatement to say that this research would not have been possible without the thoughtful guidance and support consistently offered. Thanks also to members of my Departmental Committee, Anita DeLongis, Janet Werker, Rod Wong, and Peter Graf, for their helpful comments regarding an earlier version of this manuscript. Respected colleagues Georgia Tiedemann, Susan Cross, Angela Lamensdorf, Josie Geller, Wendy Freeman, and Shawn Reynolds also made valued contributions. This research was made financially possible through a UBC-HSS grant awarded to Dr. Johnston.

I would like to offer a special word of thanks to the research assistants who dedicated their time and talents to this research project. In particular, I would like to acknowledge the contributions of: Betty Au, Celia Chan, Doris Chu, Cathy Hui, Helen Kwoo, Sylvia Lam, Laura Lee, Debbie Leung, Mei Kei Leung, Yvette Leung, Linda Sung, Karrie Tam, and Sherlyn Yeap.

Individuals in several agencies in the Lower Mainland were extremely generous with their time. Aberdeen Centre Mall, B.C. Association for Chinese Language, Chinese Cultural Centre, Ming Pau, Parker Place, SUCCESS, Vancouver Community College, and Yaohan Centre were all very supportive of this project and assisted with subject recruitment. In addition, individuals at the Chinese Cultural Centre and SUCCESS served as consultants early in the research process. Reverend Hui at the Richmond Peace Chinese-Mennonite Church was also very gracious about allowing us to conduct the pilot study during Saturday morning Chinese language classes at the Church.

I feel particularly indebted to the families who participated in this research. We were warmly welcomed into their homes and they offered thoughtful, honest descriptions of their experiences. I believe that for most of the families involved, the greatest motivation for participating in this research was a desire to help other new immigrant families.

More personally, the achievement that is represented in this work must be credited in large part to the patience, sacrifice, and unwavering support of my family. I share this accomplishment with my parents, Hank and Jacqui Krech, and with my sister and brother-in-law, Sue Krech and Michael Staffieri. And to my husband, Mike, there aren't enough words. Thank you.

## **DEDICATION**

**I would like to dedicate this work to the memories of:**

**Doris & Stanley Coulthard**

**Louise & Andrew Krech**

**Immigrants who exemplified the spirit of resiliency.**

## INTRODUCTION

### Overview

Canada has evolved as a country of immigrants. For over a century, members of First Nations communities have shared this country with individuals who have left their homes to settle here. Since "the door was opened" most recently in 1967, an increasing number of newcomers, from a diversity of homelands, have contributed to Canada's rich multicultural landscape. During the first 5 years of this decade, a record number of families immigrated to this country (Employment & Immigration Canada, 1991). In 1993, approximately 35% of Vancouver's 37,132 newcomers were classified as family class immigrants (Citizenship and Immigration Canada, 1994c). Although recent announcements have suggested that the federal vision for 1996-2000 favours economic immigrants over the family class (i.e., it is projected that by 2000, 53% of immigrants will be economic class and 44% will be family class, compared to 43% and 51% respectively in 1994), given the stated commitment to maintaining a strong family program, immigrant families will likely continue to represent a significant segment of the Canadian population into the 21st century (Citizenship and Immigration Canada, 1994b). Further, because they also come to Canada as dependents within the Business and Independent Classes, it is expected that annual numbers of immigrant children will remain steady (Employment and Immigration Canada, 1989; Citizenship and Immigration Canada, 1994a). In 1993, almost 50,000 children migrated to this country (Citizenship and Immigration Canada, 1994c).

Immigration is widely regarded as a stressful life event (Beiser & Wood, 1988; Berry & Kim, 1988). North American models for understanding stress and well-being

would predict that immigrant children and families are therefore at particular risk for developing adjustment difficulties. Empirical findings within the adult immigrant literature largely support these predictions. Many immigrants have unique mental health challenges related to experiences such as language dysfluency, underemployment, and cultural distance (Padilla, Cervantes, Maldonado, & Garcia, 1988; Trovato, 1986; Vega, Kolody, & Valle, 1987). Existing studies regarding child behavior problems vary considerably, however, in their findings (Aronowitz, 1984). That is, whereas some studies reveal the expected finding that immigrant children show more behavior difficulties than nonimmigrant children (e.g., Rutter et al., 1974), others have demonstrated that immigrant children show fewer (e.g., Touliatos & Lindholm, 1980) or an equivalent number (e.g., Monroe-Blum, Boyle, Offord, & Kates, 1989) of problems.

While methodological inconsistencies may account for some of the discrepancies across studies, an alternative explanation is that some children are protected from the stress of immigration by various family-level and/or intrapersonal factors, whereas others are not. In the present study, a model of family stress that recognizes the potential contribution of moderator variables was tested within a sample of new immigrant families from Hong Kong. It was hypothesized that this model would adequately portray the experiences of these families, and that children would show more or fewer adjustment problems largely as a function of the interplay between stress, parent distress, and buffering variables such as maternal social support. In summary, rather than focussing on whether or not immigrant children show more behavior problems than nonimmigrants, the present study begins to explore the conditions that either facilitate or prevent the development of child problems following immigration. This chapter of the manuscript is

divided into five major sections. The first section of the chapter describes a basic North American conceptual model related to stress and parent-child adjustment. This model draws from the health psychology literature as well as from theoretical developments that are more specific to parenting stress and child outcomes. Empirical evidence regarding each variable (e.g., stress) in the model is detailed. Secondly, evidence that supports this Basic Model within immigrant samples is reviewed. In this way it is possible to consider how various aspects of the model might function in immigrant families. The literature regarding behavior problems exhibited by immigrant children, relative to nonimmigrant children, is highlighted in this section. Methodological and conceptual explanations for inconsistencies across studies are explored. In the third section, the literature concerning resiliency and moderator variables is examined. Fourth, a more complex, Moderator Model that may better fit the findings within immigrant samples is presented. Aspects of this Moderator Model, and the role of maternal social support in particular, are explored in detail. Finally, the Moderator Model is summarized and a series of hypotheses for the proposed research are presented.

#### **Basic North American Model of Family Stress and Parent-Child Outcomes:**

##### **Description and Empirical Support**

##### **Description of Contemporary Models**

Although recent models advanced to explain children's development and mental health recognize the role of biology in child outcomes, social influences have been increasingly highlighted. In his ecological model, Bronfenbrenner (1979) articulated the

layers of social systems that interact with the child to influence developmental processes. He suggested that there exist four interrelated environments affecting the child: the microsystem (i.e., the most proximal, immediate setting of the child (e.g., home, daycare)), the mesosystem (i.e., the relationships between microsystems (e.g., home and school)), the exosystem (i.e., settings that are removed from the child but have an influence on development indirectly, usually via the caretakers (e.g., parent's workplace)), and the macrosystem (i.e., broad institutional and ideological patterns of a culture (e.g., religion)). Each of these social systems is said to have a role in shaping the child's behavior and development.

At the level of the microsystem, contemporary researchers have demonstrated the importance of the family context in child outcomes. Developmental psychologists have stressed the importance of sensitive and responsive parenting behavior (Ainsworth & Bell, 1974; Skinner, 1985) and warm, supportive care-giving (Beckwith, Chown, Kopp, Parmelee, & Marci, 1976; Bradley, Caldwell, & Elardo, 1979) for normal child development. Theorists have further articulated that receptive child behavior is reciprocally, or transactionally, related to sensitive parent behavior (Bell & Harper, 1977; Hammen, Burge, & Stansbury, 1990; Patterson, 1982; Sameroff, 1987). It has been suggested that when this positive cycle is interrupted or absent, coercive parent-child interactions may develop, and ultimately lead to child behavior problems (Christensen, Phillips, Glasgow, & Johnson, 1983; Patterson, 1982). Microsystem variables such as parent psychopathology and parental history of childhood abuse are increasingly being recognized as pertinent contextual factors in the parent-child relationship (Downey &

Walker, 1992; Rogosch, Mowbray, & Bogat, 1992; Straus, 1980; Watt, Anthony, Wynne, & Rolf, 1984).

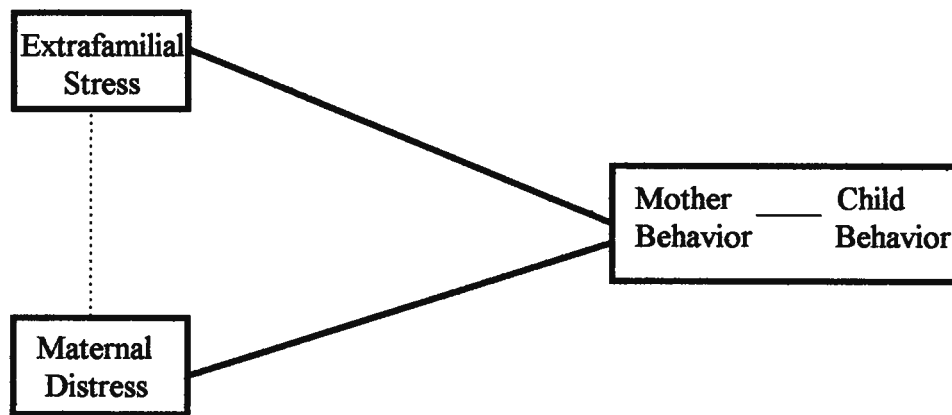
Researchers have also begun to consider the importance of the exosystem as an influence on parent and child functioning (Bronfenbrenner, 1979; Sameroff & Seifer, 1983; Webster-Stratton, 1990). Depending upon life circumstances, the exosystem will have either a positive or a negative association with parent-child functioning. For example, everything else being equal, the relationship between parent and child will be more strained in a family that is experiencing serious economic hardship, relative to a family unburdened by financial matters (Elder, Caspi, & Downey, 1986). In response to the growing demand for information regarding the identification of children at risk, researchers have sought to determine which family-level variables may be associated with disruptions in parenting and, subsequently, with negative child outcomes. Examples of exosystem variables related to parent-child difficulties include: sociostructural influences such as crime and violence, poverty, and community disorganization (Kessler & Neighbours, 1986; Wilson, 1987) and more transient stressful life events and hassles (Belsky, 1984; Krech & Johnston, 1992; Patterson, 1983; Webster-Stratton, 1988). In summary, contemporary models that aim to predict child outcomes go beyond individual child characteristics to appreciate the role of the family context, and, further, to consider the exosystem variables that influence parent behavior.

The present study is designed to determine the degree to which such models capture the experience of new immigrant families. The model that will be considered appears in Figure 1 and will be termed the Basic Model. In this model, mother-child



interactions are seen as being associated with two often-cited risk variables, extrafamilial stress and maternal distress. In general, the Basic Model predicts that children of mothers who are subjected to high levels of extrafamilial stress or who experience substantial personal distress will show more behavior problems than children of mothers who are faced with a relatively low degree of stress and distress. It is important to note that the existing literature upon which this Basic Model is grounded has relied almost exclusively on maternal reports and experiences. Although father-child relationships are clearly relevant, in order to allow for comparison with the existing literature, the present study will focus on mother-child associations. In addition, it must be clearly stated that the links to be described in this model are not presumed to be causal. The correlational nature of the supporting empirical evidence must be stressed. For example, although much of the literature suggests that the relationship between parent and child behavior is causal in the direction of parent to child, it is also recognized that there exists a reciprocal influence and that children also affect parent behavior (Bell & Harper, 1977; Hammen et al., 1990). In the same way, whereas stress and maternal distress are often thought of as impinging on parent-child behavior, aspects of the parent-child relationship can certainly contribute to increased stress and/or distress (Abidin, 1990). Rather than representing putative causal pathways, the model that is presented is meant to serve as a heuristic for contemplating associations between stress, distress, and parent and child behavior.

**Figure 1. Basic Model of Stress and Parent-Child Behavior.**



**Operationalization of the Basic Model and Related Measurement Issues**

**Child Behavior Problems**

Data from the Ontario Child Health Study suggested that child behavior problems affect roughly 15% of the school-aged population (Offord, et al., 1987a). Overall, more boys than girls show behavioral difficulties (i.e., 15% versus 11%, respectively) (Zill & Schoenborn, 1990). Children who show behaviors that reflect socially/developmentally inappropriate functioning often continue to experience mental health and social problems in adulthood (Loeber, 1990). Two empirically derived broad-band syndromes of child behavior problems have been identified; externalizing symptoms which reflect undercontrolled, acting-out behaviors and internalizing symptoms which reflect overcontrolled behaviors (Achenbach & Edelbrock, 1978). These two types of child problem have been recognized in children from several cultures (e.g., Hayashi, Toyama, & Quay, 1976; Lambert, Weisz, & Thesiger, 1989; Quay & Parskeuopoulos, 1972; Weisz, Suwanlert, Chaiyasit, & Walter, 1987) suggesting that they represent an etic, or universal,

way of describing child behavior problems. In the present study, informants will be asked to report on a range of child difficulties, drawn from both internalizing and externalizing domains.

Primarily for practical reasons, researchers who study child behavior have relied more on adult ratings than on information provided by the child or on observations of child behavior. Most often, maternal perceptions have been targeted. There are both benefits and limitations to using mothers to gather data about child behavior (Achenbach, McConaughy, & Howell, 1987). On the positive side, because mothers typically have experience with the child in a variety of circumstances over a long period of time, their reports reflect a comprehensive base of information. Interpersonal, intrapersonal, and environmental factors, however, may all function to produce biases in the mother's perceptions (Griest, Wells, & Forehand, 1979; Schaughency & Lahey, 1985), making it impossible to determine the degree to which perceived child behavior is equivalent to actual child behavior. Investigators have grappled with this issue throughout the parent-child literature (Achenbach, et al., 1987; Forehand, Wells, McMahon, Griest, & Rogers, 1982; Jensen, Xenakis, Davis, & DeGroot, 1988) and it has been generally recommended that researchers use multiple informants and weigh equally the information gleaned from each rater (Loeber, Green, Lahey, & Stouthamer-Loeber, 1991; Piacentini, Cohen, & Cohen, 1992). In the present study, child behavior ratings will be made by the child's mother, another significant adult, and by the child him/herself.

### Extrafamilial Stress

Consistent with contemporary definitions (Webster-Stratton, 1990), in this model extrafamilial stress includes demographic hardships, major life events, and daily hassles. This definition excludes interfamilial stressors such as those involved in the marital or parent-child relationship. In keeping with the understanding of stress proposed by Jessor (1979), immigration is seen as a major life stressor that has both acute and chronic sequelae. That is, the immediate consequences of uprooting and settling elsewhere, although clearly difficult, are not the only factors that contribute to the perception of stress. Post-migration experiences (e.g., language dysfluency and communication difficulties, status inconsistency and un/underemployment, racial discrimination) may be associated with daily hassles and frustrations that can persist for many months, and even years (Kuo & Tsai, 1986; Padilla, et al., 1988). Immigration stressors that are both distal and proximal to the parent-child relationship will be considered in the present study.

### Maternal Distress

Maternal distress has been characterized and measured in a variety of ways. Some researchers have used classification systems and cutpoints to determine the status of research participants as either distressed or non-distressed (Williams, Tarnopolsky, & Hand, 1980; Wing, Bebbington, & Robins, 1981). Rather than relying on this categorical approach, in the present study, distress will be defined as a continuous variable and measurement will reflect this dimensional approach.

"Distress" in this model is understood to represent the mother's experience of depressed mood, somatic complaints, and/or anxiety. This relatively broad definition

follows from suggestions in the cross-cultural literature that psychological distress may not be experienced universally in the narrow way that it is understood in Western culture (Draguns, 1980). That is, although some psychological disorders may be classified as etic and appear in similar forms across cultures (e.g., schizophrenia), culture-bound, emic, syndromes have also been identified (e.g., chat or pan, the culturally identified addiction for sweets or salty-spicy snacks in Northern India) (Tseng & Hsu, 1980). It is important to be aware that categories of disorder, as emic constructs, may not exist in the same way across cultures. For instance, it has been argued that depression, as defined by Western researchers, is culture-specific (Marsella, 1980). Specifically, some investigators have noted that there are few conceptual equivalents for words expressing the emotional components of depression in Asian cultures and instead, when Asian patients complain of excessive somatic symptoms, they often appear depressed by Western standards (Kleinman & Kleinman, 1985; Kleinman, 1987). Although support for this contention in the area of depression is not unanimous (Beiser & Fleming, 1986; Mumford, 1989; Noh, Avison, & Kaspar, 1992), it is important that researchers consider the possibility that measures that tap a given construct in North American culture may not be adequate in measuring that construct in another culture. In the present study, measures were selected with a sensitivity to differences in symptom expression cross-culturally such that the construct of depression, as manifested either emotionally or somatically, would be captured.

## Empirical Support for Links within the Basic Model

### Maternal Behavior and Child Behavior

Researchers who study clinical populations have found evidence suggesting that there is a strong association between parenting practices and child behavior problems. For example, it has been determined that a significant amount of the variance involved in the development and maintenance of child deviance may be accounted for by poor parental monitoring and inept discipline (Frick et al., 1992; Patterson, 1986). More specifically, researchers have utilized sequential analysis of observed mother and child behavior to demonstrate that vague nonspecific maternal commands increase child noncompliance (Christensen et al., 1983; Patterson, 1982). There is also a growing body of literature that links childhood depression and anxiety with family environments (Kaslow, Rehm, & Siegal, 1984; Puig-Antich et al., 1985; Stark, Humphrey, Crook, & Lewis, 1990). Hops and his colleagues (Hops, Sherman, & Biglan, 1990) showed that parental depression and marital discord are related to the later development of depression in children and adolescents. Parent behavior in these families has been described as punitive, conflictual, and intolerant (Arieti & Bemporad, 1980; Forehand et al., 1988; Puig-Antich et al., 1985). Patterson and Capaldi (1992) noted that there is an established relationship between self-esteem deficits and depressed mood in children, and suggested that coercive interactions with parents operate as one risk factor in the development of children's low self-esteem.

There is evidence that boys may be particularly at risk when parenting behavior is disrupted. For example, Hetherington and her colleagues (1982) determined that parents are more likely to argue in the presence of their sons than in front of their daughters.

Similarly, Dunn and Kendrick (1982) reported that mothers are consistently more punitive in their interactions with their sons than their daughters. Rutter (1992) suggested that girls may be more sheltered than boys from disruptions in parenting.

In sum, the link between parent behavior and child behavior is well-established in the literature. In the present study, this association is presumed, although not explicitly measured. It is expected that any relationships between extrafamilial stress and child behavior, or maternal distress and child behavior, are mediated in large part through disruptions in parenting.

### Stress and Mother-Child Behavior

Parent-child researchers have begun to investigate the role of stress in parenting behavior and related child outcomes. Several correlational studies have indicated that high levels of maternal stress are associated with disrupted discipline practices (Capaldi & Patterson, 1987; Forgatch, Patterson, & Skinner, 1988; Patterson, 1983). Similarly, in their study of families during the Great Depression, Elder, Caspi, and Downey (1986) showed that fathers who experienced the stress of major economic losses became increasingly explosive in their parenting, with a concurrent elevation in levels of antisocial behavior in the sons. Several studies have also noted that there is a relationship between stress and abusive parenting (Belsky & Vondra, 1989; Egeland, Breitenbucher, & Rosenberg, 1980; Gaines, Sandgrund, Green, & Power, 1978; Straus, 1980). For example, Justice and Justice (1976) found that abusive parents had experienced significantly more life change in the year prior to their abusive episode than did non-abusing parents. Studies using behavioral observations also have found that mothers who

reported high levels of negative life stress issued more commands, communicated less optimally, demonstrated less nurturance and used more critical or negative physical behaviors when interacting with their child than nonstressed mothers (Longfellow, Zelkowitz & Saunders, 1982; Webster-Stratton, 1988; Weinraub & Ansul, 1984; Weinraub & Wolf, 1983). Together these studies of stress and parenting point to associations between stressful family circumstances, parenting behavior, and child behavior problems.

Available evidence suggests that stress may influence boys and girls to different degrees. For example, in a sample of generally low-risk children, Masten and her colleagues (Masten, Morison, Pellegrini, & Tellegen, 1992) found that, when stressed, boys showed high levels of disruptiveness relative to their nonstressed counterparts, whereas girls continued to display low levels of problem behavior. Similarly, in family situations involving marital discord or violence, researchers have found that boys are more likely to show an immediate behavioral reaction than girls (Rutter & Quinton, 1984; Wolfe, Jaffe, Wilson, & Zak, 1985). Rutter and Quinton (1984) noted, however, that this gender difference narrows over time as the marital discord becomes more chronic.

Findings from the health psychology literature suggest that, although significant, the relationship between major life events and somatic and mental health outcomes is modest, accounting for only a small portion of the variance in symptoms (Rabkin & Struening, 1976). More of the variance in mental and physical health outcomes has been explained using minor daily stressors, or hassles (e.g., arguments, job stress), than by major life events (DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982; Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983; Wagner, Compas, & Howell, 1988). These



daily stressors may be discriminated from major life events in terms of their comparatively high frequency, low severity and close temporal proximity to symptomatology. In keeping with this focus, researchers in the parent-child area have demonstrated that daily hassles assert more influence than major life events on parent perceptions of children and on parenting behavior (Crnic & Greenberg, 1990; Krech & Johnston, 1992).

A number of explanations have been offered for the link between stress and parent behavior. For example, in an analogue study, Zussman (1980) demonstrated that when parents were asked to attend to a task and to monitor their children's play simultaneously, they exhibited a pattern of ineffective "minimal" parenting. That is, when stressed by competing cognitive demands, parents withdrew positive behaviors such as responsiveness, support, and stimulation and increased negative responses such as interference, criticism, and punishment. The implication is that environmental stressors in the real world compete with the child for attention and therefore interfere with the adult's capacity to parent.

There also exists a growing literature that documents the impact of stress on children, without reference to mediating parent behavior (Compas, 1987; Johnson, 1986). Cross-sectional investigations, considering a wide range of stressors, have consistently revealed modest associations between children's experience of life stress and heightened behavioral and emotional problems (e.g., Mullins, Siegel, & Hodges, 1985; Sterling, Cowen, Weissberg, Lotyczewski, & Boike, 1985). Similarly, prospective longitudinal studies have demonstrated that child life stress is a strong predictor of later adjustment difficulties (Compas, Howell, Phares, Williams, & Giunta, 1989; Siegel & Brown, 1988).

Further, researchers have found that these problems may be evident for several years following a stressful incident (McFarlane, Policansky, & Irwin, 1987; Wallerstein & Kelly, 1980; Yule & Williams, 1990) and are often of clinical severity (Yule, 1992).

#### Maternal Distress and Mother-Child behavior

Maternal distress has been associated with mothers' interactions with their children and with child behavior problems. For instance, Lobitz and Johnson (1975) found that elevations in parent responses on several Minnesota Multiphasic Personality Inventory (MMPI) scales were related to both observed parent negativity toward the child and to observed child deviant behavior. The existence of maternal depressed mood, in particular, has been repeatedly identified as a factor associated with poor parent-child relationships (Cohler, Grunebaum, Weiss, Garner, & Gallant, 1977; Cohn & Tronick, 1983; Weissman, Paykel, & Klerman, 1972). Researchers have found that depressed mothers have difficulty communicating, express overt hostility, and show emotional detachment in interactions with their children (Cohler et al., 1977; Weissman & Paykel, 1974). Depressive symptoms have also been shown to negatively influence adult perceptions of child behavior (Johnston & Short, 1993). Behavioral observations have provided additional support, indicating that mothers experiencing a depressed mood tend to use more critical and aversive parenting strategies than control group mothers (Biglan, Hops, & Sherman, 1988; Forehand, Lautenschlager, Faust, & Graziano, 1986; Hops et al., 1987; Webster-Stratton & Hammond, 1988). In the same way, parent irritability appears to be related to coercive interactions with children (Patterson, 1982).

The relationship between maternal distress and mother-child behavior has also been emphasized through a focus on the psychological functioning of mothers of clinic-referred children. For instance, investigators have demonstrated that mothers of disturbed children, particularly socially-aggressive children, display more maladjustment on the MMPI than do mothers of normal children (Goodstein & Rowley, 1961; Patterson, 1982). Researchers have also found that mothers of clinic-referred children report significantly higher levels of depressed mood than mothers of nonclinic children (Griest, Forehand, Wells, & McMahon, 1980; Rickard, Forehand, Wells, Griest, & McMahon, 1981). For instance, in studies comparing parents of hyperactive and normal children, investigators have found that mothers of hyperactive children are more likely to report depressive symptomatology (Befera & Barkley, 1985; Cunningham, Benness, & Siegal, 1988). These studies serve to demonstrate the link between parent distress and child problem behavior within families of clinic-referred children.

There has been limited study regarding the degree to which parental distress influences boys and girls differentially. Existing investigations suggest that boys are somewhat more vulnerable to parent psychopathology than girls (Rutter & Quinton, 1984). At the same time, however, researchers have noted that there is an association between the gender of the affected parent and the gender of children who show disturbance (Rutter, 1966; Rutter & Quinton, 1984). That is, there is a tendency for boys to exhibit behavior problems when fathers are distressed, and a tendency for girls to show problems when mothers are distressed. Similarly, Hops and his colleagues (1990) found that adolescent girls of depressed mothers displayed lower levels of happy affect than their

male counterparts. Further study regarding the differential influence of parent distress on school-aged children is clearly warranted.

### Consideration of the Basic Model among Immigrant Families

#### Empirical Support for the Basic Model from the Immigration Literature

Although some theorists have framed immigration as an opportunity for exploration and personal growth (Adler, 1975), the experience of migration is generally deemed to be stressful (Padilla et al., 1988; Walsh & Walsh, 1987). Social-anthropological theorists suggest that the stress is largely experienced in relation to the cultural changes and conflicts inherent in the migration process (Nann, 1982). According to the Fabrega migration model (Fabrega, 1969), stress is involved in leaving a country of origin, in difficulties in passage, in the adaptation process in the receiving society, and in unmet expectations for social and economic attainment in the new country. Focussing on the adaptation process within the host country, Berry and his colleagues (Berry, Kim, Minde, & Mok, 1987) identified five categories of change that immigrants may anticipate. The changes may be physical (e.g., new type of housing, more pollution), biological (e.g., new diseases, new nutritional status), cultural (e.g. new political/economic circumstances, new language), social (e.g., new set of relationships, ingroup and outgroup experiences) and/or behavioral (e.g., new routines, new mental health risks). Specific examples of the stressors experienced by new immigrants include: language difficulties, homesickness, food differences, climatic changes, underemployment, and discrimination (Kuo & Tsai, 1986; Padilla et al., 1988).

Like adults, children are often faced with a variety of stressful life circumstances following immigration. Findings from the recent Ontario Child Health Study demonstrated that, compared to non-immigrant children, immigrant children are found to be 3.7 times more likely to live in an urban setting and to live in overcrowded conditions, 3.1 times as likely to live in subsidized housing, 2.4 times as likely to have a mother who has less than an eighth grade education and 1.5 times as likely to experience some family dysfunction (Monroe-Blum et al., 1989). In addition, like their parents, children often must leave behind a way of life, friends, and loved ones. Their entry into the new culture can be confusing and frightening, particularly as they struggle to learn a new language and establish a new ethnic identity. Furthermore, during this tumultuous time, the haven that children typically would turn to for support, their family, may be unavailable to provide protection. In fact, family stability may be challenged as parents cope with the demands of finding employment, securing adequate housing, and learning the host language and customs (Hicks, Lalonde, & Pepler, 1993). No empirical data exists regarding the relationship between immigration stress and parenting behavior and/or child problems. It seems clear, however, that immigrant children experience the types of stressors that, according to the Basic Model, are predictive of subsequent mental health problems.

Several British researchers have noted that, relative to nonimmigrants, immigrant adults from a variety of countries show higher mental hospital admission rates (Bebbington, Hurry & Tennant, 1981; Cochrane, 1980; Cochrane & Bal, 1987; Glover, 1989). In general, immigrants are reported to experience a variety of psychological

problems, including depression, schizophrenia and anxiety-related difficulties (Amaro & Russo, 1987; Cochrane & Bal, 1987; Comas-Dias, 1988; Flaskerud & Soldeville, 1986). Other researchers have noted subclinical adjustment difficulties among immigrants related to language, employment, and family issues (Committee on multiculturalism and mental health and education, 1989; Padilla et al., 1988).

Overall, given that immigration is generally perceived as a stressful life event for both parents and children, and that immigrant adults tend to experience elevated rates of psychological distress relative to nonimmigrants, the Basic Model would predict that children of these distressed parents should suffer ill effects as a result of their parents' diminished capacity to provide nurturing care-giving. The empirical literature describing the mental health of immigrant children is, however, not wholly supportive of this contention. In fact, some studies have found surprisingly lower rates of behavior problems in immigrant children relative to nonimmigrant children. For example, comparing the behavioral adjustment of immigrant children from India to British children, Kallarackal and Herbert (1976) determined that Indian children showed significantly less maladjustment than their British counterparts. Similarly, in a large-scale epidemiological study, Touliatos and Lindholm (1980) demonstrated that children in the United States with parents of Chinese, Japanese or Southeast Asian descent, showed significantly fewer behavior problems than children with parents born in the United States. Steinhausen (1985) arrived at a similar conclusion comparing a sample of Greek immigrant children to their West German nonimmigrant counterparts. In a study specific to Attention Deficit Hyperactivity Disorder (ADHD), Yao, Solanto and Wender (1988) found that recently immigrated

Chinese-American children showed fewer cases of ADHD than children assessed in other cultures (e.g., North American, Italian). Contrary to prediction, these researchers have identified immigrant populations in which child behavior problems are less evident than in the host population.

This is not to say that all immigrant children are free from adjustment difficulties. Several studies have described children of immigrants as showing elevated rates of behavior problems compared to nonimmigrant children. For example, Minde and Minde (1976) found that 26% of the children in a sample of 51 families who moved from Uganda to Canada exhibited psychological adjustment problems. In Britain, Bagley (1972) demonstrated that West Indian immigrant children in this sample showed more behavior problems than nonimmigrant children. Likewise, Rutter and colleagues (1974) indicated that teachers rated West Indian immigrant children as showing conduct problems twice as often as nonimmigrant children. Surprisingly, the West Indian immigrant girls displayed rates that approximated those of boys in this sample. No differences between immigrant and nonimmigrant children were evident, however, when parents were asked to rate their childrens' behavior. Other researchers have indicated that immigrant children experience language-related social and academic difficulties (Taft, 1977a). Heightened problems amongst immigrant children have also been found when considering behavior difficulties such as elective mutism (Bradley & Sloman, 1975), autism (Harper & Williams, 1976), and parent-child interaction difficulties (Christiansen, Thornley-Brown & Robinson, 1982).

A third category of studies indicates no significant differences in behavior problems between immigrant and nonimmigrant children. Notably, Monroe-Blum and colleagues (1989), analyzing data from the Ontario Child Health Study, found that despite living in disadvantaged conditions, the immigrant children in their sample experienced rates of behavioral disturbance that were similar to those of nonimmigrant children. This study used a large stratified sample, psychometrically-sound measures of child behavior, both parent and teacher reports, and multivariate analyses. In summary, although the Basic Model is clear in predicting elevated rates of behavior problems amongst child immigrants, the empirical literature fails to yield consistent results.

There are a host of methodological and conceptual explanations that may account for the divergence of findings across studies. First, there have been inconsistencies across studies regarding the way in which immigrant samples have been defined (e.g., child versus parent as immigrant). Similarly, characteristics of the control or comparison group vary across studies. Although some researchers appropriately stratify or match on demographic variables such as socioeconomic status (Monroe-Blum et al., 1989; Rutter et al., 1974), others describe control groups in a post hoc way (Kallarackal & Herbert, 1976; Touliatos & Lindholm, 1980) or use no comparison group (Yao, Solanto, & Wender, 1988). Secondly, studies vary in the degree to which samples are homogeneous with respect to variables such as country of origin, refugee status, and time since immigration. Differences in acculturation, or proportion of refugee respondents in the sample, could in part explain inconsistencies in findings across studies. Finally, variability in the way that



child behavior problems are defined and measured (e.g., parent versus teacher report) could contribute to differences in findings.

While these methodological discrepancies clearly exist in the immigrant child literature, they are not in and of themselves a sufficient explanation for findings contrary to prediction. That is, it is not the case that studies demonstrating fewer immigrant child behavior problems are systematically different methodologically from those that show higher rates of problems amongst immigrant children. Conceptual explanations for inconsistencies in findings must also be considered. For example, within any sample of immigrant children, whether or not a given child will exhibit adjustment difficulties is likely to depend on a multitude of factors that are related to, but separate from, immigration. A family's status with respect to risk variables present at pre-migration (e.g., little time for preparation before leaving), migration (refugee status), and post-migration (no English language fluency) (Fabrega, 1969) may be influential in the development or maintenance of child behavior problems. Viewed another way, certain protective variables may exist which serve to decrease the likelihood of child behavior problems, thereby creating a subset of resilient children. In a recent review of the literature, Hicks and her colleagues (1993) identified several possible protective variables that might relate to immigrant child outcomes. These variables include: language competence, social involvement, good parent adjustment, comfortable socioeconomic status, favourable host reception, and the presence of an established ethnocultural community. These researchers emphasized, however, that empirical investigations regarding the role of such variables are sparse. The present study aims to make a contribution in this area by examining a model that considers

variables associated with increased and decreased risk for child behavior problems within a sample of immigrant children. It is clear from the conflicting empirical evidence reported that the Basic Model provides inadequate complexity for explaining the impact of the immigration experience in parents and children. A more elaborate model that includes protective, or moderator, variables will be considered.

### Resiliency and Moderator Variables

In the parenting literature, although there is clear support for a model in which stress and parent distress are related to parent-child behavior outcomes, not all children who are exposed to extrafamilial stress and/or to parent mental health difficulties develop behavior problems (Masten & Garmezy, 1985). It has been posited that there exist variables that moderate; that is, buffer or amplify, the effects of stress and parent distress on child outcomes.

### Resilient Children

Even under the most extreme circumstances, there appear to be a group of children who remain psychologically healthy despite the odds against them. Over the past decade, our understanding of the link between stress and child behavior problems has been enhanced through a shifting of focus from stress-affected youngsters to children who are raised in stressful environments but appear to suffer few adverse effects. By targeting these resilient children for study, investigators hope to determine which factors moderate the stress-child behavior relationship (Garmezy, 1985; Wyman, Cowen, Work, & Parker, 1991).

The study of resilient children has its roots in epidemiological risk research. Children deemed to be at-risk by virtue of having a schizophrenic parent were followed

longitudinally, and, contrary to expectation, investigators noted that a substantial proportion of these children developed normally (Bleuler, 1978; Mednick & Schulsinger, 1968). Early studies of resiliency focussed on personal qualities of the child. For example, Anthony (1974) concluded that assertive children who exhibited the ability to emotionally distance themselves from the affected parent did not succumb to mental illness. Beyond identifying internal protective factors, such as temperament and gender, Rutter (1970) suggested that environmental variables may also protect children from developing behavior disorders. For instance, he found that children who had a positive relationship with one parent were less likely to succumb to disorder than children without such a relationship. Similarly, in their 30 year study on the island of Kauai, Werner and Smith (1982) concluded that children who were invincible in the face of major environmental stressors possessed both internal protective characteristics (e.g., self-help skills) and exogenous sources of support (e.g., kin). In a review of this literature, Garmezy (1983), identified a triad of protective factors that consistently seemed to characterize resilient children. The triad consists of: personality dispositions of the child, a supportive family environment, and extrafamilial support sources. Despite the recognition that environmental factors play a role in resiliency, most of the empirical literature has focussed on child characteristics. Some researchers have noted that this exclusive emphasis may be misplaced and that further study regarding the role of extraindividual resources is warranted (Anthony & Cohler, 1987). In keeping with this shift towards a consideration of exosystem and microsystem variables, the present research will emphasize family-level, as opposed to child-focussed, protective variables.

## Proposed Immigrant Parent-Child Moderator Model

### Description of the Moderator Model

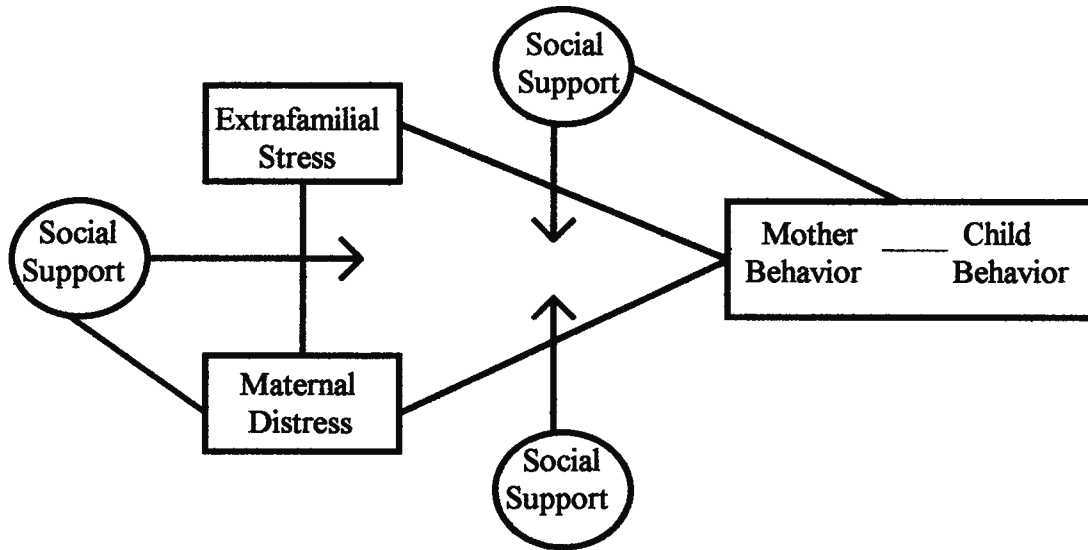
The parent-child Moderator Model is an extension of the Basic Model presented earlier. This more complex model shares with the Basic Model the assumption that if stressors from a variety of sources accumulate, parenting and child behavior may be disrupted. Uniquely emphasized in this latter model, however, is the influence of variables that serve as moderators between stress or parent distress and parent-child outcomes. Several factors; community support, a supportive family system, and the parent's experience of a nurturant childhood, have been identified as potential moderators (Webster-Stratton, 1990). The Moderator Model suggests that, depending upon their valence, such variables will either amplify or buffer the negative impacts of stress and distress. That is, according to the model, a parent who experiences strong family and community support, and/or has had a nurturing childhood, may be protected from developing parent-child interaction problems in the face of stress. In contrast, the model predicts that a socially isolated individual might be more vulnerable to parenting difficulties in stressful circumstances. This model allows for the possibility that children from families under stress may not show behavior problems, if protective factors are operating.

Although any one of several family-level protective variables could have been selected for examination, maternal social support (i.e., the mother's perception of support from family and friends) has attracted substantial research attention. For example, there is an expansive literature describing the role of perceived social support in moderating the

effects of stress on physical and mental health (House, 1981; Kessler, 1982). Further, evidence has accumulated in the parenting literature to show that social support serves as a buffer between stress and distress and parent-child problems. Because social support has been established as a viable construct for examining stress-buffering models, it stands out as the variable of choice when attempting to determine the degree to which the Moderator Model extends to immigrant families.

The proposed Moderator Model is displayed in Figure 2. Immigrant children have not been targeted extensively in the study of resiliency and/or family-level moderator variables. Given their high risk status, in terms of extrafamilial stress and parent distress, and the empirical finding that they do not uniformly demonstrate behavioral difficulties, it seems that immigrant children would provide an excellent sample in which to examine stress and child behavior problems in relation to protective variables. This model predicts that, in this immigrant sample, the relationships between stress and distress and child behavior will be moderated by maternal social support. That is, among children of stressed or distressed mothers, those whose mothers believe that they are receiving a high degree of support will show fewer child behavior problems than those whose mothers feel relatively isolated.

Figure 2. Parent-Child Moderator Model.



#### Empirical Support for Links within the Moderator Model

##### Maternal Social Support

Enthusiasm for the notion that social relationships might promote health and protect individuals from the negative effects of stress was stimulated by two seminal review papers published in the mid-1970s (Cassel, 1976; Cobb, 1976). Since then, research has accumulated regarding the relationship between social support and health outcomes (Berkman & Syme, 1979; House, Robbins, & Metzner, 1982). The mechanisms and processes linking social relationships to health are, however, still unclear. Whereas several researchers have postulated that social support moderates the effects of stress on health, evidence for the buffering role of social relationships is inconsistent (Alloway & Bebbington, 1987). A lack of clear support for the hypothesis has been associated with methodological inconsistencies (Frydman, 1981), which have been partly attributed to the

profusion of existing definitions and measures of social support. Researchers have identified several aspects of the construct, some of which appear to have a closer relationship to outcomes than others. For instance, it appears that perceived social support provides a better measure than other dimensions of support such as network size and density, or support-seeking (Kessler & McLeod, 1984; Wethington & Kessler, 1986). The bulk of the evidence suggests that perceived support is related to both stress and psychological distress, and may well function as a moderator of outcomes (House, Landis, & Umberson, 1988). As a result, maternal perceived social support was the focus of the present study.

There are several reasons to suspect that social support might be beneficial to parent-child relationships and child outcomes. For example, Cochran and Brassard (1979) suggested that in addition to providing companionship, emotional comfort, and tangible assistance, support networks often serve as models for appropriate parenting behavior. Researchers in the parent-child area have begun to examine the influence of social support on parenting and child outcomes. In a recent meta-analysis summarizing the findings of 66 studies in this area, Andresen and Telleen (1992) reported that both emotional and tangible support were significantly related to maternal behavior. In addition to an association with parenting behavior (Crnic, Greenberg, Ragozin, Robinson, & Basham, 1983; Weinraub & Wolf, 1983), investigators have demonstrated that social support is related to child behavior (Blackwell, 1991; Crnic, Greenberg, & Slough, 1986), and to maternal attitudes towards child behavior (Crnic et al., 1983). For example, Crockenberg (1981) determined that social support is associated with maternal responsiveness to her infant. Similarly, in an experimental study in which primiparous women were assigned

either to a social support condition, where volunteer coaches provided support and information, or to a control condition, Jacobson and Frye (1991) found that infants with mothers in the group with supplied social supports scored higher on attachment ratings than control infants. With slightly older children, Blackwell (1991) showed that boys of depressed mothers exhibited more externalizing behavior problems, as rated by daycare workers and mothers, when mothers reported low levels of social support. Apart from an emerging emphasis on the role of social support in parent-child relationships, there exists a consistent body of literature that links parenting difficulties with social isolation (Wahler, 1980; Dumas & Wahler, 1985). In their description of the meta-analysis conducted, Andresen and Telleen (1992) noted that studies to date have focussed perhaps too exclusively on relatively homogeneous Caucasian samples.

Blackwell's (1991) finding that maternal social support served as a buffer only for boys is one of several studies that has recognized the importance of child gender in testing moderator models. Using an inner-city sample of Black families, Myers and his colleagues (Myers, Taylor, Alvy, Arrington, & Richardson, 1992) found that maternal distress and family stress were related to heightened child problems, and that these relationships were moderated for boys in families where mothers actively acquired social support and mobilized the family. Interestingly, these active help-seeking strategies actually seemed to exacerbate the relationship between maternal distress and female child problems. In contrast, other researchers have found that variables related to acquiring support, such as family sociability and maternal social competence, are protective exclusively for girls in their high-risk samples (Masten, et al., 1992; Pianta, Egeland, & Sroufe, 1992). More



study is required in order to determine the degree to which buffering models are applicable for boys relative to girls.

Recognizing that intimate ties are a particularly important source of support (Berkman & Syme, 1979; Coyne & DeLongis, 1986), investigators are beginning to focus on support received from within the family unit. Several studies have illustrated that family support is correlated with positive child outcomes (Holahan & Moos, 1987). Varni, Wilcox, and Hanson (1988) demonstrated in a sample of children with juvenile rheumatoid arthritis that family support was a significant negative predictor of child internalizing and externalizing problems, accounting for 22% of the variance in each. Other studies have demonstrated the moderating effects that family support asserts on child outcomes. For instance, Crnic and colleagues (Crnic et al., 1983) found that intimate support moderated the effects of stress on maternal interactive behavior with infants. Overall, however, the evidence that has accumulated to date suggests that families provide an important source of support for both parents and children and that this support may moderate the effects of stress on parent-child outcomes.

Social support has been identified as an important resource for immigrant families. Many social scientists have recognized that the composition of ethnocultural families tends to follow an extended rather than a nuclear form (Mindel & Habenstein, 1981). It has been suggested that within ethnocultural groups, extended family members fulfil several roles including assisting with child-rearing, participating in family decisions, sustaining the family's cultural identity, promoting a sense of belonging, and serving as a support system (Almirol, 1982; Raphael, 1988; Wilson, 1986). Harrison and colleagues (Harrison,

Wilson, Pine, Chan, & Buriel, 1990) suggested that this emphasis on community and familial interdependency has its foundation in culturally-based ancestral world views. For example, collectivity follows parsimoniously from the Chinese teachings that emphasize filial piety and reciprocity (Suen & Ng, 1987). As such, immigrant families may be particularly fluent in the provision and receipt of social support.

There is evidence to suggest that an established community of like-ethnic members in the host country may serve as an important resource for newcomers. Ethnocultural community members can frequently be relied upon for practical assistance (e.g., assistance with orientation, securing employment and housing) (Sue & Chin, 1983). In addition, the presence of a familiar community group may ease the cultural transition by providing the new immigrant with a sense of belonging and identity (Bhatnagar, 1980; Hitch & Rack, 1980). As such, the community may be an important source of validation in the new country (Ishiyama, 1989). Individuals who do not have access to this type of "ethnic enclave" tend to exhibit higher levels of psychological distress than immigrants who belong to a larger cultural community (Bland & Orn, 1981; Murphy, 1973). There is evidence to suggest that these enclaves provide protection from stress for children as well as for their parents (Way, 1985).

In summary, in the health psychology literature, perceived social support has garnered substantial attention as a moderator variable. With respect to parenting and child outcomes, it appears that mothers under stress who have access to sources of support in their environment, and have the ability to utilize these resources, show fewer difficulties in parenting and have children with fewer behavior problems relative to mothers who lack

support. Similarly, researchers have recognized the direct positive influence of support in parent-child interactions. Although social support is widely regarded as a valued aspect of immigrant family life, there is no direct evidence that immigrant child outcomes are associated with maternal perceived support. The present study will empirically examine the degree to which this social resource serves to moderate the relationship between immigration stress/maternal distress and child outcomes.

### Additional and Exploratory Links in the Moderator Model

#### Dimensions of Child Behavior: Social Competencies

Child behavior may be viewed as occurring along a continuum from healthy to deviant. Generally, healthy behavior is understood to encompass more than simply the absence of deviant behavior; it also includes physical, mental and social well-being (Kazdin, 1995; Terris, 1973). Increasingly, researchers concerned with children's mental health have been asking questions not only about behavior problems, but also about children's strengths and competencies (Cowen & Work, 1988; Masten, Morison, Pellegrini, & Tellegen, 1992; Waters & Sroufe, 1983). This interest has been sparked, in large part, by the growing movement towards primary prevention and the related quest to identify, and to target for early intervention, precursors of mental health problems (Cowen, 1991; Weissberg, Caplan, & Harwood, 1991). Researchers have determined that children who lack social competencies are at-risk for later life difficulties. In their review of this literature, Parker and Asher (1987) found, for example, evidence for a strong association between early peer-relationship adjustment and school drop-out status in

adolescence. Similarly, the bulk of the literature supports a link between social competence in childhood and later criminality (Parker & Asher, 1987; Roff, Sell, & Gorden, 1972; Roff & Wirt, 1984). It is widely believed that, even amongst children who appear to be free from behavioral difficulties, those who exhibit a disturbed capacity for maintaining social relationships are at-risk for later problems. In response to such findings, child mental health professionals have devoted considerable attention to the development of social competence-enhancing programming (e.g., Conduct Problems Prevention Research Group, 1992; Rae Grant & Crill Russell, 1989; Selman, et al., 1992; Shure & Spivack, 1982; Weissberg et al, 1991). The thinking is that if children who are experiencing social problems can be identified and taught the skills necessary for developing and sustaining positive relationships, then the likelihood that these children will continue along a pathway towards mental health problems will be decreased.

For several reasons, including language dysfluency and cultural conflict, new immigrant children may be at particular risk for showing deficits in social relationships. Moreover, given that parents play a large role in children's acquisition of prosocial skills, through coaching and exposure to positive peer experiences (Parke & Bhavnagri, 1988; Parke, MacDonald, Beitel, & Bhavnagri, 1988), the Basic Model would predict that stressed immigrant parents would have a diminished capacity to fulfil this role. To date, however, most researchers in the immigrant child area have focussed on detecting the presence of behavioral difficulties, to the exclusion of assessing child strengths or the lack thereof. There may be a category of immigrant children who show no overt behavior problems, but who lack the skills for optimal social functioning. These children are at risk,

but are not detected in studies with an exclusive focus on internalizing and externalizing behavior. In the present study, child social competence will be measured and examined as a secondary dependent variable in the Moderator Model.

### The Stress and Maternal Distress Relationship

Although stress and maternal distress have been presented as independent constructs in the preceding discussion, it is recognized that they are related (Brown & Harris, 1978). An association has been demonstrated between chronic life strains and mental health problems (Dumas, 1986; Garbarino, 1976; Herrenkohl, Herrenkohl, Toedtke, & Yanushefski, 1984; Longfellow et al., 1982). It is therefore possible that, in addition to asserting an independent effect on parent behavior by draining resources, stress may be related to parenting through its association with distress. That is, the effect of stress on parenting and child behavior may be mediated in part by maternal distress (Conger et al., 1993; Conger, Patterson, & Ge, 1995; Webster-Stratton, 1990).

The link between stress and distress has also been articulated in the immigration literature. Researchers have identified general and acculturative stress variables that are related to immigrant adult distress. For example, using a sample of immigrant Mexican women, Vega and colleagues (1987) found that the variables that best predict depression included stress-related factors such as parent income and education, perceived economic opportunity, and perceived distance between the country of origin and the host country. Similarly, among refugees, post-migration stressors that have been identified as being significantly related to adjustment problems include: separation from family members, painful memories about pre-migration and migration experiences, placement with sponsors

that do not share fundamental spiritual/cultural beliefs, and homesickness (Nicassio & Pate, 1984; Westermeyer, 1988). Thus, the studies conducted to date seem to emphasize the importance of post-migration stressors as influences on adult mental health.

As mentioned previously, it has been further recognized in the health psychology literature that not only might stress and distress be related, but that this relationship may be moderated by social support (House, 1981). Applying this stress-buffering model to parenting, researchers have postulated that under stress mothers with high levels of support will show less distress than mothers who are relatively isolated. For example, D'Arcy and Siddique (1984) found that, among mothers of preschool and school-aged children, spousal and community social support served a buffering function in relation to the impact of stress on maternal distress. More recently, researchers have extended this to consider child outcomes. For instance, Rogosch and his colleagues (1992) conducted a path analysis through which it was determined that the influence of maternal social support on parenting was mediated by self-esteem. That is, mothers in this study, all of whom evidenced serious psychopathology, regarded themselves more positively when they perceived that they were receiving emotional support. This in turn contributed to a more favourable approach to parenting.

There is also evidence to support a link between social support and immigrant parent distress. For example, Nakagawa and colleagues (Nakagawa, Teti, Lamb, & Shigemura, 1991) determined that recently immigrated Japanese mothers who experienced low social support, displayed more depression, anxiety and anger than mothers with high ratings of social support. Similarly, using a large sample comprised of Chinese, Filipino,

Japanese and Korean immigrants, Kuo and Tsai (1986) found that a lack of social support was predictive of acculturative adjustment difficulties. In the same way, Hurh and Kim (1990) found that marital status and family satisfaction were related to Korean immigrants' mental health, and Padilla and colleagues (1988) found that Central American immigrants identified the use of a social support network as the most effective coping response when settling in a new country. Although a stress-buffering role for social support has not been invariably detected in such studies, it has been established that support is positively related to success in the acculturation process. In the present study, the role of social support in moderating the relationship between stress and maternal distress will be tested.

#### Summary of the Proposed Parent-Child Moderator Model and Research Hypotheses

##### Summary of the proposed model

The available evidence suggests that there is support for the application of the North American Moderator Model of parent stress and child behavior to immigrant samples. This model posits relationships among stress, maternal distress, and child behavior problems, which are moderated by protective variables. Of the many possible protective factors that could have been included in the present study, maternal social support was selected because there are theoretical reasons to believe that this variable may be an important source of strength within immigrant families. Many of the relationships in the Moderator Model, although possessing theoretical justification, are as yet untested in immigrant samples. For instance, although it seems likely that immigrants experience pre- and post-migration stress, this variable has not been examined in relation to child behavior

problems. Similarly, despite evidence that immigrant parents are likely to experience psychological distress, the degree to which this is related to child outcomes is not known. It is the goal of the present study to take the literature a step further by examining these relationships together in the context of making predictions about child behavior outcomes.

### Hypotheses

#### Primary Hypotheses regarding the Proposed Moderator Model

It is hypothesized that extrafamilial stress, maternal distress and social support will each assert a main effect on child behavior problems. Specifically, it is anticipated that extrafamilial stress and maternal distress will predict child problems, and higher levels of social support will be predictive of lower levels of child behavior problems. Further, in keeping with the buffer theory, it is postulated that maternal social support will moderate the relationships between extrafamilial stress and child behavior problems, and between maternal distress and child behavior problems. That is, stress and maternal distress will each assert less of an impact on child outcomes when perceived social support is high and more of an effect when support is low. Based on findings scattered throughout the literature that the results may vary according to child gender, this model will also be tested for boys and girls separately. No specific predictions are forwarded for this exploratory analysis.

Both main and interactive effects are predicted for the social support variable. Researchers have noted that it is possible for a moderator variable to serve a buffering function at high levels of stress and to assert a direct effect on outcomes when stress is low (House, 1981; Finney, Mitchell, Cronkite, & Moos, 1984). Wheaton (1985) agreed



that "there is no necessary tension between the stress-moderator and the distress deterrent role" (p. 360) and noted that there would be a reduction in mental health problems even at low levels of stress if support was high, and even larger discrepancies in distress between those with and without support as stress levels increased.

#### Secondary Hypotheses regarding the Proposed Moderator Model

Two additional relationships in the model will be tested in an exploratory manner. First, child social competence will take the place of behavior problems as the dependent variable in the model. Because no firm hypotheses can be made regarding the degree to which risk and protective variables will be associated with social competencies, this application of the model is exploratory.

Secondly, the association between stress, perceived support and maternal distress will be investigated as a test of the general stress-buffering model. Consistent with findings using other samples, it is anticipated that perceived support will moderate the relationship between extrafamilial stress and maternal distress in this immigrant sample. In addition, it is postulated that extrafamilial stress and social support will each assert a direct effect on maternal distress.

## METHOD

### Sample

#### Inclusion Criteria

To be eligible for participation in this research project, families were required to meet three basic criteria. First, only families that had recently immigrated from Hong Kong were considered. Hong Kong was selected as the source country of interest largely because Vancouver School Board records suggested that, in recent years, roughly twice as many children immigrated from Hong Kong as from any other source country (Vancouver School Board, 1990, 1991, 1992). In addition, at a theoretical level, unique aspects of this immigrant community make it a particularly relevant sample in which to explore the utility of North American stress and coping models. For example, because Hong Kong is a relatively Westernized, affluent society, and because there is an established Chinese community in Greater Vancouver, it may be expected that immigrants from this country would experience less acculturative stress and fewer adjustment problems. While this may be the case, there are other aspects of Hong Kong culture that challenge this suggestion. For instance, it has been suggested that the cultural distance between Chinese and North American societies, particularly in terms of differences in core values, is significant (Sue & Chin, 1983). Also, the value placed on achievement and family honour in Chinese culture might place additional pressures on families struggling with the realities of loss and culture conflict inherent in the migration process (Sue & Chin, 1983; Sue & Sue, 1990). In addition, for some families within this immigrant community it is necessary that fathers continue to reside and work in Hong Kong for much of the year (Ng, 1993).

Participants were drawn from a single source country for both logistical and conceptual reasons. From a practical point of view, the expense involved in translating questionnaire packages into more than one language was prohibitive. By way of example, estimates received regarding the cost of translating the questionnaire package into Chinese hovered around 22 cents per word, plus \$50 per page for typesetting. Given that the questionnaire package was 16 pages long and contained roughly 5000 words, and that languages involving more complex script (e.g., Punjabi) were even more costly, gathering data from multiple source countries was not possible. In addition, it was not logistically feasible to recruit and train research assistants representing more than one language group.

Conceptually, there are both advantages and disadvantages to recruiting participants from a single source country. On the positive side, an immigrant sample drawn from a single source country is more likely to be homogeneous in terms of, for example, family values, sociopolitical background, cultural beliefs, and lifestyle. This permits data interpretation that is based on knowledge of the culture (Foster & Martinez, 1995). The converse of this, however, is that findings may not generalize to immigrants from other countries. Given the large number of immigrant children and families moving from Hong Kong to Vancouver and the Lower Mainland (Committee on Multiculturalism and Mental Health Education, 1987; Vancouver School Board, 1992), the results of this study are likely to be of practical significance locally, even in the absence of demonstrated generalizability to additional cultural communities.

A second criteria for inclusion in the research project was that families must have immigrated within the past 4 years. Time since immigration has been identified as an

important variable associated with both the experience of stress (Berry, et al., 1987) and with mental health outcomes (Beiser, 1988). In general, newcomers are thought to be at greatest risk for developing psychological adjustment problems in the first few years following migration (Grinberg & Grinberg, 1984; Tyhurst, 1982). According to theoretical models that describe different stages of adjustment following migration, an initial honeymoon period is generally followed by a period of cultural conflict and distress, before a state of bicultural resolution is ultimately reached (Lysgaard, 1955; Oberg, 1960; Sue & Sue, 1990). Most estimates identify the 3-18 month period following migration as the range of time during which emotional difficulties are most likely to surface amongst adults (Beiser, 1988; Rumbaut, 1985; Sokoloff, Carlin, & Pham, 1984). Although most immigrants ultimately reach some resolution regarding their new cultural identity and lifestyle, for some, symptoms of anxiety and depressed mood persist (Beiser, 1990). Fong and Peskin (1969) found that students from China continued to exhibit symptoms of distress 3.5 years following migration. Krupinski (1967) likewise noted that, whereas for men the incidence of schizophrenia was highest 1 to 2 years post-migration, for women the peak occurred between 7 and 15 years later. Parallel studies focussing on the mental health of immigrant children in relation to time since immigration have yet to be conducted. Research that examines children's emotional responding to stress more generally, however, has suggested that while behavior problems may not surface for several weeks following a major life event (Goodyer, Kolvin, & Gatzanis, 1987), these difficulties can persist for one or more years (McFarlane, et al., 1987). In order to capture the time period most germane for the development of behavior problems, the present

study included only recent arrivals; families who had lived in Canada for 4 years or less. This also corresponds with the timing involved in becoming a citizen of Canada, which is typically a 3-4 year process.

The final criteria for inclusion in the study was that families had at least one elementary school-aged child who themselves had immigrated from Hong Kong. Canadian-born children of Hong Kong immigrant parents were not eligible to participate in the study. Children under age 6 or above age 11 were also excluded from this research project. An effort was made to include in the study an equal number of boys and girls, and an equal number of younger children (age 6-8) and older children (age 9-11). In cases where families had more than one eligible child, a target child was selected with a view to maintaining this gender and age balance. When the accumulating sample was evenly matched on these dimensions, a random numbers table was used to select the target child.

#### Recruitment of Participants

Participation in this research project was generated via several methods of outreach. First, and perhaps most importantly, community leaders and ethnospecific agencies were contacted and informed about the study. Several key agencies took an interest in the project and assisted in publicizing the research to their members (e.g., United Chinese Community Enrichment Services Society, Chinese Cultural Center, B.C. Association for Chinese Language). In addition, several organizations that house English as a Second Language (ESL) programs allowed announcements of the research project within their classes. Approximately 22% of participants ( $n=28$ ) were recruited through ethnospecific agencies and ESL classes.

The study was also publicized within the community of Hong Kong immigrants more widely. For example, booths were set up for 2 to 3 day periods at three Asian shopping centers in Richmond, B.C.. At these booths, posters were distributed to interested patrons and bilingual research assistants answered questions about the study. Several eligible families ( $n=42$ , or 33% of recruited sample) signed up to participate in the study during these display periods.

In addition, posters translated into Chinese were placed in Asian communities throughout the Lower Mainland (primarily Vancouver, Richmond, Burnaby, and Coquitlam). Key locations included: libraries, community centers, Asian markets, doctors' offices, and children's recreation areas. The Chinese media was also approached to publicize the study. Announcements appeared on Chinese television and were heard on a local Chinese radio station. The research project was also described in detail in a story that appeared in a popular Chinese newspaper. Many individuals contacted us having learned about the study through the media or via posters ( $n=56$ , or 44% of the recruited sample). Through this combination of outreach methods, information regarding this study was deemed to have reached most segments of the immigrant Hong Kong community.

Families could indicate their desire to participate in one of two ways, depending on how they learned of the research project. First, if they were present at a venue in which the research was described (e.g., Asian mall display), they could write their first name and telephone number on a sign-up sheet. If, on the other hand, the family learned of the study through a poster or media publication, then they were asked to call a central telephone number. An answering machine was always in operation at this number and families were

instructed, in a translated message, to leave their first name and telephone number. In either case, a bilingual research assistant then contacted the interested family, provided additional information about the study, and scheduled an appointment to visit the mother and target child at their home.

### Sample Size

The results of a power analysis, using Cohen's (1985) tables and estimating small to medium effect sizes, indicated that 108 study participants would be required for the planned analyses. A total of 164 families expressed an interest in this research project. Of these, 123 were eligible to participate and received questionnaire packages. A total of 122 children agreed to be interviewed during the home visit. One hundred and eight mother packages were returned to UBC (an 86% rate of return) but only 104 (96% of returned questionnaires) were usable. Three packages were deemed unusable because they contained an excessive amount of missing data (i.e., more than 20% of questions left blank). As an aside, smaller amounts of missing data were handled through prorating of scores. The fourth package was omitted because it was determined that the family did not, in fact, meet eligibility criteria.

### Description of the Sample

Characteristics of mothers and children in the study are displayed in Table 1. Briefly, most mothers in the sample were in their mid- to late thirties, and indicated that they had lived in Canada with their children, on average, for 17 months. The mean age for children who were involved in the study was 8 years. Of the 104 usable questionnaires returned, 55 of the mothers reported on girls and 49 reported on boys. Mothers indicated that they and their children resided here for roughly 11 months of the year, whereas their

spouses lived in Canada for only 9 months of the year on average. Households included an average of 2 children and a maximum of 4 extended family members. Most mothers (77%), however, reported having no extended family members in the home. Families had an average of three additional relatives living in B.C..

Table 1. Demographic Information for Study Participants.

Variable	M	SD	Range	N
Mother age (years)	37.4	4.0	27 - 46	102
Child age (years)	8.4	1.7	6 - 11	104
Time since migration (months)	16.6	12.8	1 - 48	101
# Months here - mother	11.7	1.0	3 - 12	102
# Months here - father	9.2	4.0	0 - 12	101
# of children	1.8	0.8	1 - 5	102
# extended family in home	0.4	0.9	0 - 4	100
# relatives in BC	3.4	5.4	0 - 40	101
SES in Canada <sup>a</sup>	31.8	12.8	8 - 60	102
SES in Hong Kong	45.0	9.4	16 - 64	102

<sup>a</sup> SES = socioeconomic status as calculated using the Hollingshead Index of Social Status, where scores of 8-19 are the lowest social strata (e.g., unskilled labourers) and scores of 55 - 66 are the highest social strata (e.g., major professionals).



Families' socioeconomic status since moving to Canada was significantly lower than families' status in Hong Kong ( $t(101) = -11.8, p < .001$ ), as measured by the Hollingshead Index of Social Status (Hollingshead, 1975). In qualitative terms, families moved, on average, from an upper middle class status (i.e., minor professionals, technicians) to a middle class status (i.e., skilled workers, clerical, sales). Seventy-five percent of mothers stated that they had no plans to return to Hong Kong. Amongst those who indicated that they intend to go back, the return was anticipated for almost 3 years hence, on average.

Research assistants provided ratings of the mothers' openness and acculturative status following each home visit (see Global Ratings below). According to these assistants, mothers were reasonably open and comfortable with the research process, in that they received a mean score of 20 ( $SD=4.1$ ) on an instrument with a maximum score of 30 points. Also, on a scale from 0 to 6, where 0 is "not at all" acculturated and 6 is "very" acculturated, the mean rating for mothers in this sample was 3.5 ( $SD=1.4$ ). Research assistants estimated that they spent about 20 minutes with each mother during the home visit.

As a part of the Social Skills Rating System (Gresham & Elliott, 1990) (see below), mothers were asked to describe their children's problem behavior both prior to, and since, immigrating to Canada. Scores were converted to standard scores based on age and gender (scale mean is 100, standard deviation is 15). Mothers remembered their children's behavior to be significantly less problematic in Hong Kong relative to their post-migration adjustment ( $t(103) = -4.65, p < .001$ ). The ratings of behavior both here and in

Hong Kong were within the normal range for children of the same age and gender (i.e., standard scores of 97 and 94, respectively).

## Procedures

### Research Assistants

Bilingual research assistants were recruited for this project for several reasons. First, it was anticipated that the presence of a bicultural individual would enhance families' comfort and increase their willingness to participate in the study. Second, many aspects of this study required facility in both English and Cantonese (e.g., translating written materials, receiving telephone calls, conducting home visits). Finally, as immigrants from Hong Kong themselves, these women could offer insights that would assist with culturally-sensitive data collection.

Bilingual research assistants were initially recruited through notices posted in UBC student areas. A total of seven undergraduate women, fluent in both Cantonese and English, joined during the first phase of the project. In addition to completing approximately 10 hours of orientation and training<sup>1</sup>, these individuals assisted in conducting a pilot study, and served as bicultural consultants as procedural details were finalized. For the second phase of the project, data collection, six additional bilingual women were recruited (i.e., for a total of 13 research assistants).

### Preparation of Questionnaire Package

#### Translation

Because it was assumed that many new immigrants from Hong Kong would be unable to respond confidently to questions written in English, the questionnaire package

was translated into Chinese. Participants were given the choice of completing the package in either English or Chinese (98% selected the Chinese version). In response to widely held concerns that a failure to convey the intended meaning often results if words are literally translated by one individual, a four-step translation process was used. First, bilingual/bicultural consultants reviewed the proposed questionnaires. These consultants were mental health professionals who serve the Chinese community and were recommended by the Multicultural Health coalition of the Affiliation of Multicultural Social Service Agencies (AMSSA) in Vancouver. Consultants reviewed the items in each instrument with a view to cultural appropriateness and ease of translation. This included, for example, identifying items that might offend respondents or might be considered too personal by Chinese individuals. Consultants also identified the words and phrases for which literal translation would not be possible.

Second, the measures were prepared for translation. Brislin (1980) offered several guidelines for the preparation of the English version of materials to be translated. For instance, he stressed the importance of unambiguous wording and suggested the use of short, simple sentences of less than 16 words to assist in achieving clarity of meaning. He also recommended that vague terms, such as "now and then," be avoided and that metaphors and colloquialisms be replaced with plain language. He encouraged the use of specific terms (e.g., dog and cat rather than pets) and redundant language (e.g., repeat nouns instead of using pronouns). Of course, if following such suggestions required major changes to an original English language questions, then the reliability and validity of the modified measure would have to be determined. In general, researchers have found that

carefully translated instruments retain their psychometric properties (e.g., Noh, Avison, & Kaspar, 1992; Roberts, Vernon & Rhoades, 1989; Solis & Abidin, 1991). In the present study, an attempt was made to select English language measures that had been used cross-culturally in previous investigations, and, without modification, met Brislin's (1980) criteria. In addition, a central consideration in choosing instruments was that items already consist of objective terms, rather than vague, global labels that might be misinterpreted. Very few wording changes were suggested by cultural consultants; instead, most of their concerns centered on the total length of the questionnaire package and on wording of the nonstandardized demographic and immigration stress questions. These consultants did, however, recommend specific structural changes designed to minimize the chance of confusion by enhancing consistency across measures (e.g., use of 4-point response scales for all instruments).

The third step in the translation process was to have the questionnaires professionally translated. This service was provided by a Chinese counsellor at Surrey-Delta Immigrant Services. As part of the service, the package was back-translated by another Chinese staff member. There were five or six phrases that produced some degree of discrepancy between translators. These were discussed and the term that best conveyed the intended meaning was chosen in each case. The questionnaire package was then independently checked for accuracy by the Editor of the UBC Chinese Students newspaper, and then checked again by three bilingual research assistants. The assistants detected 8 to 10 phrases that could have been better worded and the resulting changes were made.

Fourth, after the translation was finalized, a pilot study was conducted. Questionnaire packages were presented to mothers who had recently immigrated from Hong Kong with children aged 6 to 11 years. In addition to completing the questionnaires as instructed, mothers were asked to indicate any terms that were difficult to understand, grammatically incorrect, or culturally insensitive.

#### Pilot Study

The pilot study was conducted at a Chinese Language School in Richmond, B.C.. Mothers who consented to participate received the package of questionnaires in a stamped, addressed envelope. They were asked to return the package to UBC after completing the questions at home at a quiet time. Of 30 packages distributed, 18 were mailed back (a 60% rate of return).

On the basis of results from the pilot study, one major change in instrumentation was made. It became clear from the responses that mothers were confused by the format of the social competence measure proposed. In addition, they endorsed relatively few items on the measure tapping child behavior problems. Based on these findings, two changes were made. A simpler, more sensitive measure of social competence was employed, and when presenting the measure of child behavior problems research assistants made a statement intended to normalize the existence of these child problems so that mothers would feel more comfortable endorsing problems.

Minor changes to the package were also made on the basis of suggestions made by pilot study mothers. For example, one item on the child behavior problem measure was supposed to read, "allergies," but it became clear by mother's examples (e.g., "afraid that I

talk about his faults in front of others") that the translation could also be interpreted to mean "sensitivities." In addition to wording changes, the layout of the package was altered somewhat to facilitate easy completion. Also, a sample item was provided for the social support measure because it had a slightly different format from other instruments in the questionnaire package. Overall, there appeared to be no concern regarding the content of questionnaire items. Most mothers completed even those items that might be considered sensitive.

### Data Collection Procedures

The main source of data for this research initiative was the questionnaire package to be completed by mothers. Because this package was lengthy, and contained items of a personal nature, written questions were favoured over an interview format. At the same time, a personal approach to questionnaire distribution was deemed necessary for increasing interest in the study and for ensuring comprehension of items. As a result, questionnaire packages were hand-delivered to participants' homes at a pre-arranged time. Counterbalanced packages were prepared and placed in stamped, addressed envelopes labelled with subject numbers. During the visit, details of the study were explained (e.g., means for maintaining confidentiality, etc.), and mothers agreeing to participate signed a translated consent form. General instructions (e.g., complete the package in one sitting, at a quiet time) were then followed by specific guidelines for completing each of the questionnaires. Packages were left with mothers and they were asked to return them by mail to UBC as quickly as possible. Immediately after the interview, the research assistant made global ratings of the mother (see "Global Ratings" below). Names and telephone

numbers of several research assistants were provided in case questions arose as mothers were completing the questionnaires. When envelopes were received, packages that included payment of \$10, a list of local community resources, and a note of thanks, were sent to families.

A second source of data was the child's own perceptions of immigration stress and his/her adjustment in Canada. During the home visit, the child was asked to complete a brief structured interview that included a standardized measure of child behavior and rationally-derived questions regarding immigration stress. In order to increase the likelihood of unbiased responding, this interview took place in a separate location relative to the meeting with the child's mother. The rationale for the study was explained to the child and the interview proceeded with his/her assent (only one child refused to participate). If they asked, children were informed that their responses would be shared with their parents in a general way if they requested feedback. Afterwards, a series of global ratings of the child's adjustment were made (see "Global Ratings" below).

In addition to data gathered through the mother and target child, an adult familiar with the child's daily behavior was asked to complete the rating of child adjustment. The mother was asked to select this person (e.g., child's father, a family friend, a teacher, etc.) and to give him/her the questionnaire to be completed in private. Eighty-nine percent of mothers found an appropriate individual to complete this form. Of forms received, 57% were completed by the child's father, 33% were completed by another family member, and 10% were completed by a family friend or professional in the community.

## Measurement

### Mothers' Questionnaire Package<sup>2</sup>

#### Family and Immigration Information

Family Information Questionnaire. This brief measure (Appendix A), created for the present study, was designed to gather information pertinent in defining the sample. Mothers were asked to record, for example, their date of birth and date of arrival in Canada, their educational level, and their occupation here and in Hong Kong. They also provided basic information about their children (e.g., genders, ages, date of arrival in Canada). Finally, one item from the Mother Immigration Stress Scale (below) appeared on this measure. This item pertains to changes in family income subsequent to migration and seemed most appropriately placed among other questions regarding employment.

#### Extrafamilial Stress

The Hassles and Uplifts Scale - Revised (Hassles Scale). Mothers were asked to complete a modified version of the 53-item revised Hassles and Uplifts Scale (DeLongis, Folkman, & Lazarus, 1988). Because Uplifts were not a focus of interest for the present study, only the Hassles portion of the scale was presented to mothers. In order to complete the modified Hassles Scale, mothers indicated how much of a hassle, from 0 (none or not applicable) to 3 (extremely), each item was on the day of questionnaire completion. In addition to a total score, it is possible to calculate both the frequency and severity of hassles experienced that day, as well as factor scores. In the present study, only the total score was used in the main analyses. According to DeLongis (1985), the total hassles score of this scale is characterized by high autocorrelations (.77 from day to



day) indicating a stability of stress ratings over time. Internal consistencies ranging from .80 to .93 were reported for these subscales. Validity of the scale has been demonstrated in terms of predicting health outcomes (DeLongis, et al., 1982) and psychological symptoms (Kanner et al., 1981).

The Hassles Scale was chosen over other stress measures for several reasons. First, hassles appear to be a better predictor of parent perceptions of child behavior than are major life events (Crnic & Greenberg, 1990; Krech & Johnston, 1992). Similarly, cross-cultural researchers have suggested that, although the migration experience in itself may be stressful, it is the more proximal daily stressors associated with post-migration adjustment that affect mental health (Berry & Kim, 1988; Berry et al., 1987). Second, the revised version of the Hassles Scale has eliminated items potentially confounded with health or psychological outcomes. Third, the items in the Hassles Scale are clear, simple, short and objective, allowing for straightforward translation. In addition, the Hassles Scale retains its good psychometric properties when it is applied cross-culturally (Lepore, Palsane, & Evans, 1991).

Minor changes were made to this scale on the basis of recommendations from cultural consultants. First, rather than asking participants to circle a number from 0 to 3 to represent their response, each option (i.e., "none/not applicable, somewhat, quite a bit, extremely) was written out in full for every item. This simpler, repetitive format was deemed more appropriate for this immigrant sample. Secondly, the options for responding differed slightly from the Hassles Scale traditionally used. In the revised version (DeLongis, et al., 1988) the four options were: "none or not applicable," "somewhat,"

"quite a bit," and "a great deal." In the present version, the option, "a great deal" was replaced with "extremely" because the original term posed difficulty for translation. Finally, mothers were asked to reflect on hassles over the past week, rather than merely during the past day, as is the procedure on the revised Hassles Scale. This modification was made on the recommendation of cultural consultants to be consistent with other measures included in the package, thereby simplifying the demands placed on respondents.

Five items from the Mother Immigration Stress Scale (Appendix B) appeared at the end of the Hassles Scale because they were well-suited to the format of this scale. These items contributed to the score of the Mother Immigration Stress Scale and not to the Hassles Scale. The overall reliability (alpha) of the version of the Hassles Scale used in this study was .92.

Immigration Stress Scale. Mothers were asked to respond to 15 questions designed to assess the degree of immigration stress that the family had experienced (Appendix B). Ten of these questions refer to the mother's experience of stress following immigration (termed Mother Immigration Stress Scale). The dimensions included are: pre-migration stress, language difficulties, status inconsistency (i.e., a decline in socioeconomic status upon immigration due to inability to obtain employment in the occupation in which the individual was trained in the country of origin), homesickness, perceived incompatibility between own and Canadian culture, and racial discrimination. Of the many possible stress-eliciting aspects of immigration to consider, these variables were chosen because they have received empirical attention (Padilla et al., 1988; Vega et al., 1987). Questions regarding language issues, homesickness, culture incompatibility,

and racial discrimination appeared on the Hassles Scale (see above). These items were selected from a measure of daily social stress that was developed for immigrant respondents (Kuo & Tsai, 1986). The status inconsistency question appeared on the Family Information Questionnaire (above) and remaining items regarding general migration stress and language fluency were included on the questionnaire labelled Immigration Stress Scale.

The questions were brief and straightforward and required a response on a 4-point scale that used construct-specific anchors. For instance, mothers were asked to indicate how much stress they experienced during various stages of the immigration process by endorsing either "no stress"(0), "a little stress"(1), "quite a bit of stress"(2), or "extreme stress"(3). Similarly, in reporting their perceived English language fluency, mothers were to endorse either "fluent"(0), "good"(1), "fair"(2), or "poor"(3). Scores were totalled and higher scores always reflected more stress. The internal consistency coefficient for this exploratory scale was .66.

In addition to self-reported immigration stress, mothers were asked to comment on their child's experience of stress. Five child-related items, collectively termed the Child Immigration Stress Scale in subsequent analyses, also appeared on the Immigration Stress Scale. Mothers were asked to indicate the level of stress that their child experienced generally during immigration, and then to rate his/her English language fluency and experience of racial discrimination and homesickness. A 4-point scale was also used for recording these aspects of child immigration stress. Scores were totalled and high scores

reflected higher levels of stress. The internal consistency coefficient for this scale was only .53.

#### Parent Distress

Center for Epidemiological Studies - Depression Scale (CES-D). The CES-D (Radloff, 1977) is a 20-item scale that measures the major dimensions of depression. Radloff (1977) reported that the scale is composed of four symptom clusters: negative affect, positive affect, interpersonal problems and somatic or retarded activity. Only the total score was used, however, in the present study. Originally created for community use, the CES-D has been widely used with both clinical and community samples (Aneshensel & Frerichs, 1983; Myers & Weissman, 1980; Roberts & Vernon, 1983). According to Radloff (1977), this dimensional scale has demonstrated good reliability and validity. For instance, in terms of internal consistency, she reports an alpha coefficient of .85 for the total score in community respondents and .90 in patients, and test-retest reliabilities of .51 to .59 over periods of 2 to 8 weeks. With respect to validity, Radloff (1977) found that CES-D scores significantly discriminated psychiatric inpatients from general population samples and were sensitive to improvements following treatment. In addition to good psychometric properties, this measure was chosen to reflect adult depressed mood in the present study because it is comprised of objective items and has been shown to retain its psychometric qualities when translated for use in other cultures (Noh, et al., 1992; Roberts et al., 1989).

Mothers were asked to indicate their responses on a 4-point scale. For clarity, as with the Hassles Scale, rather than using a number code short form, each of the four

possible responses was written in full after each item. The range of responses was: "none of the time or rarely (less than 1 day a week)," "a little of the time (1-2 days)," "a moderate amount of time (3-4 days)" and "most or all of the time (5-7 days)". The internal consistency of this scale in the present study was .89.

Symptom Checklist-90-Revised (SCL-90-R): Somatization and Anxiety subscales.

The SCL-90-R (Derogatis, 1983) is a 90-item self-report inventory that provides a measure of psychological distress in both community and clinic samples. It consists of nine empirically-derived primary symptom dimensions, including Somatization and Anxiety subscales. For each of the symptom dimensions, respondents are asked to indicate, on a 5-point scale ranging from 0 (not at all) to 4 (extremely), the level of discomfort experienced as a result of each item over the past week.

The Somatization scale was selected for use in the present study so that somatic expressions of depressed mood, reportedly common in Asian cultures, could be measured. The scale consists of 12 items and reflects distress arising from perceptions of bodily dysfunction. Items on the Somatization scale are simple and straightforward. Derogatis (1983) indicated that this scale is reliable in that it demonstrates high internal consistency (.86) and test-retest reliability (.86). The Anxiety scale was included in the present study in order to capture this domain of thoughts and feelings that has been found to be associated with the immigration experience (Berry & Kim, 1988). The Anxiety dimension on the SCL-90-R consists of behavioral (e.g., trembling) and cognitive (e.g., the feeling that something bad is going to happen to you) items. Again, the wording is simple and unambiguous. The internal consistency of the scale is .85 and the test-retest reliability is

.80 (Derogatis, 1983). With respect to validity of the entire scale, studies have indicated that the SCL-90-R demonstrates concurrent validity with other measures (Derogatis, Rickels & Rock, 1976) and sensitivity to changes due to intervention or experience (Egan, Kogan, Garber, & Jarrett, 1983). In addition to its strong psychometric properties, the SCL-90-R was deemed appropriate for the present study because an effort was made in the original item development to utilize a basic level vocabulary to convey meanings. Further, the SCL-90-R has been translated into 20 languages and used extensively in cross-cultural research (Kim, Kim & Won, 1983; Simoes & Binder, 1980).

The SCL-90-R was modified slightly for use in the present study. Specifically, in response to suggestions made by cultural consultants, a 4-point scale replaced the original 5-point scale so that study participants would not be confused by scale variations across measures. Response options included: "not at all," "a little bit," "moderately," and "extremely." As with the other stress/distress measures, these response options were written in full after each item rather than using a number code short-form. A total score was created by summing scores on both Somatization and Anxiety subscales. The internal consistency coefficient for these combined subscales was .85 in the present study.

### Social Support

Multidimensional Scale of Perceived Social Support. The Multidimensional Scale Of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item scale that measures the perception of support available from family members, friends, and a significant other. In keeping with the evidence that perceptions of support are critical (Barrera, 1981; Sarason, Levine, Basham, & Sarason, 1983), Zimet and his colleagues

(1988) have developed a measure that taps an individual's perception of the adequacy of the support received from important others. To complete the Multidimensional Scale Of Perceived Social Support, respondents circle a number along a 7-point rating scale that ranges from "very strongly disagree"(1) to "very strongly agree"(7) in response to each statement. Confirmatory factor analysis revealed three subscale groupings: perceived support from family, from friends, and from a significant other. In the present study, only the total score was used in the analysis. Zimet and colleagues (1988) reported good internal consistency ( $\alpha=.88$ ) for the scale as a whole, and for each subscale (i.e., for the Family, Friends, and Significant Other subscales, alpha values were .87, .85, and .91, respectively). The test-retest reliability for the whole scale was .85, indicating adequate stability. Moderate construct validity was also demonstrated as scores on the Multidimensional Scale Of Perceived Social Support were significantly negatively related to depressive symptomatology as measured by the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Relative to many other social support measures, this scale offers clear simple instructions, brevity, and readily translatable items.

Minor changes were made to the Multidimensional Scale Of Perceived Social Support for its use in the present study. First, a sample question was included so that participants could see how to complete this type of scale, which was different from others in the questionnaire package. Secondly, in the present version, following items tapping the adequacy of support received from a special person, participants were asked to

indicate their relationship to this individual (e.g., spouse, friend, sister, etc). The internal consistency for this scale in the present study was .94.

Parent Support Scale. This scale, designed for use in the present study, focusses on perceptions of the adequacy of support received specifically within the parenting domain (Appendix C). The scale taps three potential sources of support: family, friends, and spouse. Participants were asked how often they receive parenting support (e.g., child care, discipline advise) from these sources. Responses were made on a 5-point scale that includes options, "never"(0), "rarely"(1), "sometimes"(2), "quite a bit"(3), and "regularly"(4). Participants were also asked how helpful they deem the support received from each of these sources to be. Again, a 5-point scale was used, ranging from "not at all helpful"(0), "rarely helpful"(1), "sometimes helpful"(2), "usually helpful"(3), to "extremely helpful"(4). Only the total score was used in the present study. The internal consistency coefficient for this scale was .70.

### Child Behavior

Child Behavior Checklist (CBCL). The CBCL (Achenbach, 1991) is a frequently used, standardized measure of the behavior problems and competencies of children. Both internalizing and externalizing syndromes are represented on the CBCL and are measured in the form of T-scores. Respondents rate the target child on a 3-point scale, ranging from 0 (not true (as far as you know)) to 2 (very true or often true), for each of 113 problem items. From these ratings, it is possible to determine the degree to which the child exhibits problem behaviors relative to an age- and gender-appropriate normative sample.

The CBCL possesses good psychometric properties. With respect to internal consistency, Achenbach (1991) reports that the total problem behavior score has a



Cronbach's alpha of .96. The Internalizing scale alpha coefficient for girls is .90 and for boys is .89. The alpha coefficient for the externalizing scale is .93 for both girls and boys. Using a 1 week interval, the test-retest reliability of the internalizing scale is .89 and the externalizing scale is .93. After 1 year, this reliability drops to .82 for the internalizing scale and .86 for the externalizing scale. In terms of validity, Achenbach (1991) provides evidence that the CBCL discriminates significantly between clinic-referred and nonreferred children and is associated with other scales designed to tap child behavior problems. In addition to these psychometric strengths, the CBCL is a desirable measure for the current study because items are short and objective. The measure has been applied cross-culturally with success (Bird et al., 1987). The total behavior problem T-score, based on age and gender norms, was used in the present study. The internal consistency coefficient for the CBCL in this sample was .95.

Social Skills Rating System. The Social Skills Rating System (Gresham & Elliott, 1990) focusses primarily on positive child behaviors deemed important for initiating and maintaining successful relationships with others. The social skills section of the Parent version has 38 items and includes four subscales: Cooperation, Assertion, Responsibility, and Self-Control. Only the total score was used in the present study. Parents were asked to indicate how often their child shows each positive behavior listed on a 3-point scale (i.e., "never," "sometimes," "very often"). Total social competence scores were created by summing items and determining respective standard scores based on age and gender norms (i.e., Social Skills Rating System mean is 100 and standard deviation is 15).

According to Gresham and Elliott (1990), the social skills section of the Social Skills Rating System-Parent form for Elementary students has a coefficient alpha of .87 and a test-retest reliability correlation of .87. In terms of validity, there is a moderate correlation between the Social Skills Rating System total score and the CBCL social competence score. In addition, the Social Skills Rating System reportedly differentiates groups of handicapped from nonhandicapped children (Gresham & Elliott, 1990).

The Social Skills Rating System was modified slightly for use in the present study. For example, parents were not required to make an importance rating for each social skill as they are in the original Social Skills Rating System. This request was omitted in order to minimize the complexity of the scale. The internal consistency for this scale in the present study was .91.

### Children's Interview

#### Stress

Stress Thermometer. This scale was designed for the present study to provide some assessment of the child's own perception of the stress involved in immigration (Appendix D). The child completed these ratings with the help of the research assistant during the home visit. To complete the Stress Thermometer, the child was asked to draw a line on a picture of a thermometer to indicate the amount of stress s/he experienced in coming to Canada from Hong Kong. The thermometer was 20 cm high and the child's score was the number of centimeters from the bottom that s/he placed the line. Visual analog scales have been shown to be a useful way of gathering data from children (Jay, Ozolins, Elliott, & Caldwell, 1983).

Scale of Children's Stress. This series of questions was meant to parallel those appearing on the Immigration Stress Scale (Appendix E). The four questions tapped aspects of immigration such as: homesickness, English language fluency, and discrimination. The children's responses were scored as indicating either high stress, low stress, or medium stress. For example, in response to the question, "Do you like living in Canada or in Hong Kong better?" the response "Canada" received a score of 0, "Hong Kong" received a score of 2, and "both the same" was scored a 1. The internal consistency of this exploratory scale was only .24.

### Child Behavior

Child Rating Scale. The Child Rating Scale (Hightower, Spinell, & Lotyczewski, 1990) was developed for use in the Primary Mental Health Project at the University of Rochester. This 24-item instrument assesses children's perceptions of their own functioning, particularly within the classroom setting. Children rate on a 3-point scale (i.e., "usually no," "sometimes," "usually yes") the degree to which each statement applies to him/her. Children's responses may be grouped into four empirically-derived subscales: Rule compliance, Anxiety, Peer Social Skills, and School Interest. For the purposes of the present study, item scores were summed to produce a total score. Hightower and colleagues (Hightower et al., 1987) reported that the Child Rating Scale has moderately high internal consistency ( $\alpha=.78$ ) and satisfactory test-retest reliability ( $r=.74$  over a 10-week interval). In terms of validity, the authors indicated that the scale is capable of discriminating groups known to differ in adjustment and shows convergent and divergent validity with other measures of child adjustment (Hightower, et al., 1987). The Child

Rating Scale is also a valued measure for the present study because it is brief and is easily translated. The order of presentation, between Child Rating Scale and the stress ratings, alternated across children. The reliability (alpha) for this scale in this sample was .75.

### Global Ratings

#### Mother Global Ratings

After the home visit, research assistants provided global ratings of the mother's interview behavior (Appendix F). This rating system was developed so that, in the absence of a social desirability measure, some assessment of each mother's openness and motivation to participate in the study was available. In addition to noting the duration of the meeting, research assistants rated, on five 7-point likert scales, each mother's comfort with the research project/home visitors. Included on these scales was an item regarding the mother's acculturative level. Ratings were reverse-scored as required and were summed to produce a total openness score. The internal consistency of this measure was only .43.

#### Observer-Child Rating Scales

Following the home visit, research assistants made ratings of the child's behavior during the meeting. Global ratings were made on five 7-point likert scales (Appendix G). Ratings were summed to produce a total score. During the orientation phase, using a simple coding manual developed for this task<sup>3</sup>, research assistants practiced making such ratings on videotapes of Clinic children and child actors. This measure was designed to provide a global impression of the child's adjustment. No attempt was made to establish reliability across raters.

## RESULTS

### Primary Analyses regarding the Moderator Model

#### Summary Statistics

##### Means, Standard Deviations, and Ranges

The means, standard deviations, and ranges for the variables in the proposed Moderator Model are presented in Table 2. For several of the measures used, the mean scores recorded in this Asian immigrant sample can be compared to the normative mean as cited for non-immigrant community samples. For example, Radloff (1977) reported a mean overall score of 9.25 (SD = 8.58) for the standardization sample on the Center for Epidemiological Studies - Depression scale (CES-D). In a community sample of single mothers ( $N = 66$ ), a presumably stressed group, the mean score was 13.89 (SD = 10.67) (Krech & Johnston, 1992). Noh and his colleagues (1992) determined that, despite suggestions that Asians underreport psychological distress, the mean score for their community sample of immigrant Korean-Canadians ( $N = 86$ ) was 14.71. Using these means as points of comparison, it appears that the present sample reported a moderate level of distress (i.e.,  $M = 15.94$ ). Further, contrary to the predictions of several cross-cultural researchers (Kleinman & Kleinman, 1985), somatic items on the CES-D were not differentially endorsed over items reflecting psychological symptomatology. In fact, the items most frequently endorsed in a depressed fashion by mothers in this sample were those reflecting a lack of positive affect (i.e., there was a tendency among participants to answer none of the time or rarely or a little of the time to items such as "I felt that I was just as good as other people," "I felt hopeful about the future," and "I was happy."). Noh

Table 2. Means, Standard Deviations, and Ranges for Variables in the Moderator Model.

Variable	M	SD	Range
<b>Adult Ratings<sup>a</sup></b>			
Hassles Scale	20.62	13.66	1 - 62
Mother Immigration Stress Scale	11.10	3.83	2 - 20
Child Immigration Stress Scale	4.77	2.09	0 - 11
CES-D	15.94	9.66	0 - 41
SCL-90-R Subscales	7.45	5.78	0 - 26
MSPSS	60.98	15.63	18 - 84
Parent Support Scale	13.51	3.73	5 - 23
CBCL - Mother <u>T</u> Score	53.03	11.27	24 - 75
CBCL - Other Adult <u>T</u> Score	51.09	11.34	24 - 73
Observer-Child Rating Scale	23.46	4.40	2 - 30
<b>Child Ratings<sup>b</sup></b>			
Stress Thermometer	6.74	5.19	0 - 20
Scale of Children's Stress	3.76	1.45	0 - 8
Child Rating Scale	62.40	5.54	46 - 71

Note. CES-D = Center for Epidemiological Studies - Depression Scale, SCL-90-R Subscales = Somatization + Anxiety Subscales of the SCL-90-R, MSPSS = Multidimensional Scale of Perceived Social Support, CBCL = Child Behavior Checklist.

<sup>a</sup> N=104, except for CBCL - Other Adult where N=97 and for Observer Child Rating Scale where N= 122. <sup>b</sup> N=121, except for Child Rating Scale where N=119.

and his colleagues (1992) found a similar pattern of responding in their research involving the Korean community. These researchers suggested that this tendency to respond dysphorically to positively framed items may reflect an aspect of Asian culture that exists independently of depressed mood.

With respect to the Multidimensional Scale of Perceived Social Support, Zimet and his associates (1988) provided normative information that was based on the responses of a cross-section of college students ( $N = 275$ ). A mean total score of 69.56 was reported. These researchers acknowledged that this score indicates a relatively high level of social support and noted that, for any given item, few of the respondents rated the support that they received as less than 3.5 on a 7-point scale. Although the mean score for the present sample was also rather high (i.e.,  $M = 60.98$ ), there was a range of scores reported, suggesting that some of the mothers felt truly unsupported. In the college sample, students reported receiving approximately equal levels of support from friends, family, and a significant other. Mothers in the present study were similarly balanced with respect to source of support (i.e., family ( $M = 20.91$ ), significant other ( $M = 20.87$ ), friends ( $M = 19.25$ )).

Several of the child ratings may also be compared to a normative sample. For example, the Child Behavior Checklist (CBCL) scores describing children in the present study were converted to  $T$ -scores based on child age and gender (Achenbach, 1991). Scores of 53.03 for mother ratings of child behavior and 51.09 for other adult ratings therefore fell about the normative mean. Like the scale total, scores for both the internalizing and externalizing syndromes also fell about the normative mean for ratings by

both the mother (i.e., 51.29 and 50.29, respectively) and another adult (i.e., 50.45 and 49.91, respectively). The five problems most frequently endorsed on the CBCL for this sample were: “argues a lot,” “can’t concentrate, can’t pay attention for long,” “can’t sit still, restless, or hyperactive,” “clings to adults or too dependent,” and “complains of loneliness.” For the Child Rating Scale, although no total score comparisons are available (because scores were not totalled in the normative study), subscale scores can be contrasted to an age and gender matched normative sample (Hightower, et al., 1990). In the present study, the mean Anxiety/Withdrawal score fell at the 57th percentile, Rule Compliance at the 60th percentile, Social Skills at the 61st percentile, and School Interest at the 71st percentile, relative to the normative sample.

North American comparison samples are also available for the Hassles Scale and for subscales of the Symptom Checklist-90-Revised (SCL-90-R). Modifications made to these scales for the present study, however, preclude a comparison between these norms and the current sample. For example, the instructions on the version of the Hassles Scale used in this study asked mothers to think about stressors that had occurred over the past week, rather than over the past day. This modification was made on the advice of cultural consultants who indicated that participants might have difficulty with different time frames across measures. They suggested that to be consistent mothers should always be asked about stress/distress over the past week. With respect to the frequency and severity of hassles reported on the Hassles Scale, mothers indicated that they experienced, on average, 17 items as stressful in the 1 week period surveyed. They rated these hassles as only mildly severe (i.e., 1.19 on a 4-point scale ranging from 0 to 3). The five items most



frequently endorsed as stressful were: “enough money for necessities,” “your spouse,” “eating (at home),” “your children,” and “time spent with family.”

The subscales of the SCL-90-R were also altered too much to allow for cross-cultural comparison. Consultants recommended that a 4-point scale be used, rather than the standard 5-point scale, in order to be consistent with other measures of stress and distress. On the subscale tapping somatic concerns, the mean was 4.97 (SD = 3.83), with a range of 0 to 16. A maximum possible score on this subscale would have been 36. In response to the prompt, “How much were you distressed by:”, the three most frequently selected items were: “soreness of your muscles,” “headaches,” and “feeling weak in parts of your body.” The mean score for the anxiety subscale was 2.48 (SD = 2.87), with a range of 0 to 11. The highest possible score on this subscale would have been 30. The three most frequently selected items were: “nervousness or shakiness inside,” “feeling tense or keyed up,” and “feeling fearful.”

Finally, it is obvious that no North American comparison group exists for measures developed for use in this study (i.e., Mother Immigration Stress Scale, Child Immigration Stress Scale, Parent Support Scale, Stress Thermometer, Scale of Children’s Stress, Mother Global Ratings, Observer-Child Rating Scale).

### Intercorrelations

Table 3 shows the intercorrelations amongst the variables in the proposed model. Note that each of the mother-rated independent variables was significantly related to child behavior problems in the hypothesized direction. That is, measures of extrafamilial stress (i.e., Mother Immigration Stress Scale, Child Immigration Stress Scale, and Hassles Scale)

Table 3. Zero-order Correlations amongst Variables in the Moderator Model.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Adult Ratings<sup>a</sup></b>													
1. Hassles Scale	--												
2. Mother Immigration Stress Scale	.54***	--											
3. Child Immigration Stress Scale	.12	.42***	--										
4. CES - D	.32***	.54***	.34***	--									
5. SCL-90-R Subscales	.38***	.43***	.32***	.56***	--								
6. MSPSS	-.26**	-.37***	-.29**	-.51***	-.39***	--							
7. Parent Support Scales	-.25**	-.09	-.17	-.23*	-.29**	.44***	--						
8. CBCL - Mother T Score	.27**	.41***	.37***	.38***	.48***	-.25**	-.32***	--					
9. CBCL - Other Adult T Score	.33***	.29**	.35***	.34***	.30**	-.25*	-.29**	.64***	--				
10. Observer Child Rating Scale	.02	.01	-.12	.07	.05	-.10	-.16	.11	-.04	--			
<b>Child Ratings<sup>b</sup></b>													
11. Stress Thermometer	.22*	.07	.12	.04	.07	-.18	.04	.16	.04	.01	--		
12. Scale of Children's Stress	.13	.27**	.30**	.20**	.14	-.07	-.01	.22*	.16	.06	.18*	--	
13. Child Rating Scale	-.09	-.13	-.09	.05	-.06	.04	-.04	-.15	-.18	.08	-.32***	-.33***	--

Note. Scale names have been abbreviated as in Table 2.

<sup>a</sup> N=104, except for CBCL - Other Adult where N=97 and for Observer-Child Rating Scale where N=121. <sup>b</sup> N=121, except for Child Rating Scale where N=119.

\*p<.05. \*\*p<.01. \*\*\*p<.001.

and maternal distress (i.e., CES-D and SCL-90-R subscales) were significantly related to child behavior ratings (i.e., CBCL) in a positive direction, whereas measures of maternal social support (i.e., Multidimensional Scale of Perceived Social Support and Parent Support Scale) were negatively correlated with child behavior problems. Significant correlations that parallel these findings were found when child ratings were made by the other adult who knows the child well.

Child ratings of their own stress and behavior were largely consistent with this pattern, but the effects were not as strong. For example, the two measures of children's own stress, the Stress Thermometer and the Scale of Children's Stress, were negatively correlated with the child's rating of his/her behavioral strengths (i.e., Child Rating Scale) to a significant degree. In addition, the Scale of Children's Stress was significantly related to mother ratings of child problems in the expected direction, and there was a trend towards significance in the relationship between the Scale of Children's Stress and other adult ratings of the child. There was also a trend towards significance regarding the relationship between the Stress Thermometer scores and mother ratings on the CBCL. Scores on the Stress Thermometer were not associated with other adult ratings, however. Research Assistant ratings of child behavior (Observer-Child Rating Scale) were not related to any of the other variables considered. This global rating likely suffered from problems related to ceiling effects (i.e., although one child received a very low score, most of the other ratings clustered in the 20-30 range).

## Data Aggregation and Transformation

### Composite Measures

Each independent variable (e.g., extrafamilial stress) was measured using an established, primary, instrument (e.g., Hassles Scale) and an experimental, secondary, measure (e.g., Mother Immigration Stress Scale). The secondary measures were included in order to capture aspects of each construct that were deemed to be particularly relevant in this sample of immigrant families. In the case of the stress construct, additional measures pertaining to the child's experience of stress following immigration were also included (i.e., Child Immigration Stress Scale, Stress Thermometer, Scale of Children's Stress).

With respect to correlations between primary and secondary measures of each construct, Table 3 reveals moderate correlations between each of the two major measures of extrafamilial stress, maternal distress, and social support. In order to decrease the number of measures entered into subsequent analyses, and to minimize the problem of multicollinearity in regression analyses, composite measures were formed. To create the Stress Composite,  $z$  scores were computed for the Hassles Scale and for the Mother Immigration Stress Scale, and then were summed. Ratings of child stress were not included in this Composite because of their low internal consistency and because they were not related to the maternal measures of extrafamilial stress in a strong and consistent manner. As an aside, it is possible that the low reliability of the Scale of Children's Stress reflects the grouping together of disparate aspects of immigration stress. A more homogeneous scale that tapped children's appraisals of stress may have been more

internally consistent. Because this was not the primary focus of this study, the child stress ratings were simply excluded from subsequent analyses. The Distress Composite was obtained by adding together  $z$  scores from the CES-D and from the somatic and anxiety scales of the SCL-90-R. Finally,  $z$  scores from the Multidimensional Scale of Perceived Social Support were added to  $z$  scores from the Parent Support Scale to create the Support Composite. Reliabilities (alpha coefficients) for these three Composites were .92, .91, and .92, respectively.

In addition to describing relationships amongst independent variables, Table 3 reveals that mother ratings of child behavior were moderately correlated with the perceptions of another adult rater. In keeping with the above rationale, a Child Behavior Problem Composite was formed by summing the  $z$  scores of mother ratings and other adult ratings. Had the child ratings of their own behavior been correlated with these adult ratings, they too would have been included in the Composite. Likewise, the research assistant ratings would have been added to the Composite if moderate correlations were obtained with other perceptions of child behavior. As it stands, however, only mother and adult ratings were used in subsequent analyses.

Intercorrelations amongst all of the Composite measures appear in Table 4. As expected, the Stress, Distress, and Support Composite scores were significantly related to the Child Behavior Problem Composite in the anticipated directions. It is also apparent from Table 4 that the Stress, Distress, and Support Composites were themselves moderately correlated.

Table 4. Intercorrelations amongst Composite Measures.

Variable <sup>a</sup>	1	2	3	4
Stress Composite	--			
Distress Composite	.54***	--		
Support Composite	-.33***	-.47***	--	
Child Problem Composite	.40***	.48***	-.35***	--

Note. Stress Composite = Hassles Scale + Mother Immigration Stress Scale; Distress Composite = Center for Epidemiological Studies - Depression Scale + Somatization and Anxiety Subscales of the SCL-90-R; Support Composite = Multidimensional Scale of Perceived Social Support + Parent Support Scale; Child Problem Composite = Child Behavior Checklist - Mother T score + Child Behavior Checklist - Other Adult T score.

<sup>a</sup> N=104, except for Child Problem Composite where N=97.

\*\*\*  $p < .001$ .

#### Linear Transformation

In Moderated Multiple Regression, the influence of a putative moderator variable is reflected in the inclusion of an interaction term in the regression equation. This interaction term, which is the product of two independent variables (e.g., Stress multiplied by Support), carries the influence of the moderated relationship. In the present study, two interaction terms were included in the equation predicting child problems; Stress x

Support and Distress x Support. Prior to the creation of these interaction terms, in anticipation of problems arising from multicollinearity of independent variables in the regression analyses, a transformation was conducted on these predictor variables. This linear transformation, commonly called centering, has been increasingly recommended in Moderated Multiple Regression as a way to decrease the association between the product terms that carry the interaction effect and the independent variables upon which they are based (Coulton & Chow, 1992; Cronbach, 1987; Dunlap & Kemery, 1987; Finney et al., 1984; Jaccard, Wan, & Turrisi, 1990; Koeske, 1992). Two similar forms of this transformation have been recommended, and both yield essentially the same results (Jaccard, Wan, & Turrisi, 1990). Cronbach (1987) suggested that mean scores be subtracted from the raw scores of all of the independent variables before product terms are formed (i.e., deviation scores are used instead of raw scores). The second method that has been employed involves the use of standard scores. Each independent variable is converted to a standard score prior to the formation of product terms (Dunlap & Kemery, 1987). In the present research, because the Composite measures were created using standard scores, the latter method of controlling multicollinearity was utilized.

### Primary Regression Analyses

#### Regression Diagnostics

Prior to conducting the Linear Moderated Multiple Regression analyses, several steps were taken to ensure that the regression assumptions were not violated. These assumptions include: linearity, homogeneity of variance, and normality. In order to test

these assumptions, standardized residuals were first plotted against predicted values. The assumption of linearity would be deemed violated if the plotted residuals formed a systematic pattern (e.g., curvilinear or u-shaped designs). No discernible patterns could be detected on these plots, rather, the residuals appeared to be randomly clustered about the horizontal line through zero. This result suggests that the relationship between the independent variables and child behavior problems is best represented by a straight line<sup>4</sup>. The assumption of homogeneity of variance may also be evaluated by examining the plot of residuals and predicted values. Because the spread of the residuals appeared to be constant across levels of the predicted values, this assumption also seems to have been met. In order to assess the normality of the distribution, a histogram of standardized residuals was created. The residuals appeared to be roughly normally distributed. Use of the nonparametric one-sample Kolmogorov-Smirnov Test confirmed that there was a normal distribution.

In addition, several procedures were followed to detect the possible presence of outliers or influential points. An examination of standardized residuals determined that there were no outliers in this data set. One influential point did surface, however, using a combination of procedures designed to detect unusual cases. That is, this case had a large Mahalanobis Distance (i.e., a large distance (20) between this point and the mean values for the independent variables), a high leverage value (i.e., this point has a significant influence on the fit of the model (.21)), and a high covariance ratio (i.e., this point has an impact on the variance-covariance matrix (1.32)) (Statistical Package for the Social



Sciences, Inc., 1993). As a result, this case was deleted from further analyses regarding this model.

### Moderated Multiple Regression

Regression Analysis, Total Sample. The Moderated Multiple Regression procedure was first presented by Saunders (1956) as an alternative to analysis of variance methodology in detecting interaction effects. Statistical methods and procedures for interpretation have since been formalized (e.g., Aiken & West, 1991; Baron & Kenny, 1986; Cohen & Cohen, 1983; Jaccard, Turrisi, & Wan, 1990). A central principle that has been established is that Moderated Multiple Regression is to be conducted hierarchically (Aiken & West, 1991; Cronbach, 1987; Koeske, 1992). Specifically, interaction terms are to be entered into the equation only after the influence of control variables and main effect independent variables have been considered. In the present study, a block containing the Stress, Distress, and Support Composites was entered first. A block containing the interaction terms Stress x Support and Distress x Support was then entered. The dependent variable in the analysis was the Child Behavior Problem Composite.

With respect to control variables, only 4 of 39 correlations between potentially influential variables (e.g., socioeconomic status, child age) and the independent variables were significant (i.e., maternal English language dysfluency was related to Distress,  $r(103) = .22, p < .05$ , and Stress,  $r(103) = .37, p < .001$ ; the families' socioeconomic status in Hong Kong was related to Stress,  $r(101) = -.22, p < .05$ ; and time since immigration was related to Support,  $r(100) = -.20, p < .05$ ). In spite of the limited number and strength of these relationships, regression analyses were initially conducted controlling for these variables.

Analyses were then re-run in the absence of control variables. It was noted that the outcome of the analysis was the same, regardless of whether or not control variables were entered into the equation. As a result, all subsequent analyses were conducted without controlling for these variables, so as to avoid sacrificing power.

The full regression model, then, was of the form,

$$\text{Child Behavior Problems} = b_0 + b_1 \text{ Stress} + b_2 \text{ Distress} + b_3 \text{ Support} + \\ b_4 (\text{Stress} \times \text{Support}) + b_5 (\text{Distress} \times \text{Support}).$$

In keeping with guidelines suggested by House (1981), when scores for all variables are “scaled positively with a real zero point” (p. 133),  $b_1$  estimates the main effect of Stress on Child Behavior Problems,  $b_2$  estimates the main effect of Distress on Child Behavior Problems, and  $b_3$  estimates the main effect of Support on Child Behavior Problems. Theory predicts that  $b_1$  and  $b_2$  should be positive, whereas  $b_3$  should be negative. Evidence for stress buffering by Support exists when  $b_1$  is significant and positive, and  $b_4$  is significant and negative. This reflects the negative change in slope that results from an increase in Support (i.e., the relationship between Stress and Child Behavior Problems decreases when Support increases). Likewise, evidence for the buffering of Distress by Support exists when  $b_2$  is significantly greater than zero and  $b_5$  is significantly less than zero.

Some researchers contend that, in the presence of a significant interaction effect, main effects should not be interpreted because the significant interaction implies that effects are conditional, rather than constant, across levels of the moderator variable (e.g., Cleary & Kessler, 1982). Others have suggested that the effect of constituent variables

should be considered (Finney, et al., 1984; House, 1981), although there is some dispute as to how this is best accomplished. The debate appears to lie in the way in which a main effect is defined. Whereas some researchers suggest that a main effect is to be understood as the influence of a variable in the absence of any interaction terms (House, 1981), others have posited that it should be seen as the average effect of a variable across all levels of a moderator variable (Finney, et al., 1984). Finney and his colleagues (1984) make a compelling argument for this latter position and indicate that centered scores will allow for the meaningful interpretation of main effects. In the present analysis, given that scores have already been centered, it is considered appropriate to examine main effects as well as interactions.

The results of the regression analysis appear in Table 5. As is consistent with previous regression modeling in health psychology, all variables, even those that were nonsignificant, were considered in the interpretation of the full model. Analyses conducted in this area typically do not proceed to re-run regressions, omitting nonsignificant terms, until the best predictive statement is obtained. Rather, the emphasis is on examining the degree to which each variable in the model is important. Two blocks of variables were entered into the equation. First, the main effect independent variables were entered, producing a significant model that accounted for 27% of the variance in child behavior problems. Each of the independent variables operated in the anticipated direction (i.e.,  $b_1$  and  $b_2$  were positive and  $b_3$  was negative). Interaction terms were entered in the next block. The resulting full model was significant overall, accounting for 32% of the variance in child problems within this immigrant sample. The change in  $R^2$

attributable the the addition of the interaction terms was also significant. In keeping with the suggestions made by Finney and his colleagues (1984), main effects were interpreted at this point. Both Distress and Stress were significant predictors of Child Behavior Problems. The Support Composite, however, was not significant in this model. With respect to interaction effects, the Stress x Support variable operated in the expected direction but was nonsignificant. In contrast, the Distress x Support interaction term was significant, but appeared to function in an unanticipated direction. That is, rather than being significantly negative as would be predicted by the buffering model,  $b_5$  was significant and positive.

Table 5. Summary of Hierarchical Multiple Regression Analysis predicting Child Behavior Problems<sup>a</sup>.

Predictors	B	SE B	b	T	Sig T
Stress Composite	0.24	0.19	0.23	2.00	.048
Distress Composite	0.34	0.12	0.32	2.80	.005
Support Composite	-0.16	0.11	-0.15	-1.50	.126
Stress x Support	-0.06	0.06	-0.10	-0.90	.388
Distress x Support	0.16	0.06	0.27	2.40	.016

$$R^2_{\text{change}} = .05 \text{ (due to interaction terms)} \quad F_{\text{change}} = 12.14 \quad p < .001$$

$$R^2 = .32 \text{ (full model)} \quad F(5,90) = 8.40 \quad p < .001$$

Note. Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup> N=96.

The interaction finding in this study is particularly striking in that, contrary to the stated buffering hypothesis, the relationship between maternal distress and child behavior problems appeared to be facilitated by the perceived presence of social support. That is, as social support increased, the slope of the relationship between maternal distress and child behavior problems became steeper (i.e., the relationship between Distress and Child Behavior Problems became more pronounced with increasing Support). In an effort to further understand this result, the sample was divided into three groups; ordered according to higher (i.e.,  $z$  scores from  $+0.84$  to  $+3.75$ ), medium (i.e.,  $z$  scores between  $-0.52$  and  $+0.83$ ), and lower (i.e.,  $z$  scores from  $-4.2$  to  $-0.51$ ) Support. Separate regression analyses were conducted for each of these groups (see Table 6). It is apparent from these analyses that, indeed, as the level of social support increased, the slope of the line relating Distress to Child Behavior Problems became steeper. A series of scatterplots depicting these relationships may be found in Figure 3.

Table 6. Regressions of Maternal Distress on Child Behavior Problems at Lower, Medium, and Higher Levels of Perceived Support.

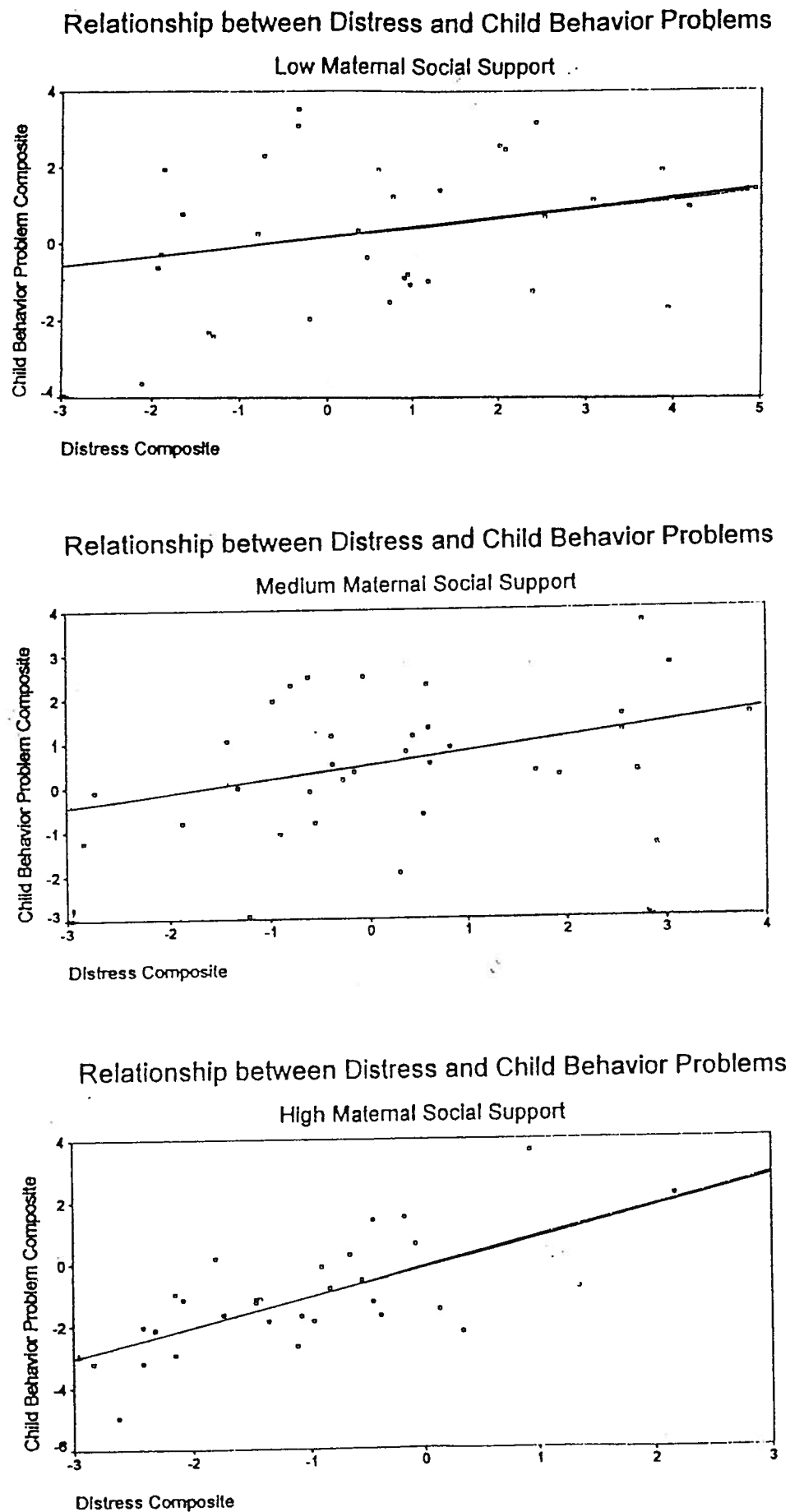
Predictors	B	SE B	b	T	Sig T
Lower Support ( $\underline{z} = -4.23$ to $-0.51$ ) <sup>a</sup>					
Distress Composite	0.24	0.18	0.24	1.33	.193
$R^2 = .06$ $\underline{F}(1,29) = 1.77$ $p > .05$					
Medium Support ( $\underline{z} = -0.52$ to $0.83$ ) <sup>b</sup>					
Distress Composite	0.31	0.14	0.36	2.20	.035
$R^2 = .13$ $\underline{F}(1, 32) = 4.84$ $p < .05$					
Higher Support ( $\underline{z} = 0.84$ to $3.75$ ) <sup>c</sup>					
Distress Composite	0.97	0.20	0.67	4.90	.001
$R^2 = .45$ $\underline{F}(1,29) = 24.20$ $p < .001$					

Note. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup>  $n=31$ . <sup>b</sup>  $n=34$ . <sup>c</sup>  $n=31$ .

Figure 3. Scatterplots of the relationship between Distress and Child Behavior Problems

at Lower, Medium, and Higher Levels of Support.



Before concluding that the data truly reflects this counterintuitive finding, it seemed important to rule out alternative computational explanations for this significant interaction. Two competing explanations were deemed plausible. First, because the guidelines for interpreting Moderated Multiple Regression forwarded by House (1981) presuppose that variables “are scaled positively with a real zero point” (p. 133), there was some question as to whether or not centered data, with its positive and negative values, yielded interpretable results. In order to ensure that the unexpected finding was not the result of the multiplication of positive and negative integers, a linear transformation was applied that made all data points positive (i.e., added the most negative number for each variable to every score). The regression analysis that resulted from the use of these transformed Composites produced results that were identical to those obtained in the primary analyses. The unexpected direction of the interaction effect cannot, therefore, be attributed to the centering procedure.

Secondly, it seemed feasible that this unexpected finding might be the result of collinearity among main effect independent variables in that, whereas the centering procedure provides protection from collinearity between the interaction terms and the single independent measures upon which they are comprised, it does not correct for the relationships amongst single independent variables. As indicated in Table 3, Stress, Distress, and Support were moderately intercorrelated. Therefore, two separate regression analyses were conducted; one testing Stress, Support, and Stress x Support as predictors of Child Behavior Problems, and the other evaluating the role of Distress, Support, and Distress x Support. These analyses are displayed in Table 7. In the first model, both Stress and Support were significant predictors of Child Behavior Problems



**Table 7. Separate Regressions on Child Behavior Problems; Stress, Support, and Stress x Support, and Distress, Support, and Distress x Support.**

Predictors	B	SE B	b	T	Sig T
Regression Model including Stress, Support, and Stress x Support <sup>a</sup>					
Stress Composite	0.33	0.10	0.32	3.17	.002
Support Composite	-0.26	0.11	-0.24	-2.39	.019
Stress x Support	-.001	0.05	-.002	-0.02	.986

$$R^2_{\text{change}} = 0 \text{ (due to interaction term)} \quad F_{\text{change}} = 0 \quad p > .05$$

$$R^2 = .21 \text{ (full model)} \quad F(3, 92) = 8.14 \quad p < .001$$

Regression Model including Distress, Support, and Distress x Support <sup>b</sup>					
Distress Composite	0.46	0.10	0.44	4.40	.001
Support Composite	-0.19	0.11	-0.18	-1.83	.070
Distress x Support	0.12	0.05	0.21	2.32	.023

$$R^2_{\text{change}} = .04 \text{ (due to interaction term)} \quad F_{\text{change}} = 2.43 \quad p < .05$$

$$R^2 = .29 \text{ (full model)} \quad F(3, 92) = 12.41 \quad p < .001$$

**Note.** Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup> N=96. <sup>b</sup> N=96.

and the interaction term (Stress x Support) continued to be nonsignificant. The second model paralleled the findings of the full model, including the significant positive  $b_5$ . Evidently, the unexpected result cannot be attributed to collinearity between Stress and Distress variables.

In summary, the counterintuitive result does not appear to be easily explained by the computational or procedural methodology employed. Rather, it seems to be a true reflection of the data. In this sample, the relationship between maternal adjustment and children's behavior was stronger in families where mothers perceived that they were supported than in families in which mothers felt isolated. It is important to note, however, that mothers who reported lower levels of social support showed higher mean levels of maternal distress ( $z$  score = .73) and child problems ( $T$  score = 55.5) than mothers who perceived that they were well-supported who reported relatively low rates of both personal distress ( $z$  score = -.94) and child problems ( $T$  score = 47.4). It is not the case, therefore, that the presence of higher levels of social support facilitated the development of child problems under conditions of high maternal distress. Rather, it was the strength of the relationship between maternal distress and child problems that increased across levels of social support.

Regression Analysis, by Child Gender. The extent to which the findings obtained with the entire sample held across child genders was explored next. The sample was dichotomized based on the gender of the target child. Although mothers were asked to think about this target child while completing the questionnaire package, in interpreting these findings it should be recognized that several families also had children of the opposite gender in their home. Means and standard deviations for the standardized

composite measures in the proposed model are displayed by child gender in Table 8. T-tests were conducted comparing scores in families with male versus female children for all variables in the Table. Results show that only the difference in Support is significant ( $t(102) = -2.41, p < .05$ ). That is, mothers of girls reported that they receive significantly more support than mothers of boys. Other scores were not significantly different by child gender.

Table 8. Means, Standard Deviations, and Ranges for all Variables in the Moderator Model, by Child Gender.

Variable	M	SD	Range
Families of Boys <sup>a</sup>			
Stress Composite	0.21	1.82	-3.48 to 5.35
Distress Composite	0.04	1.82	-2.94 to 4.18
Support Composite	-0.41	1.73	-4.23 to 2.68
Child Problem Composite	0.32	1.70	-3.20 to 3.70
Families of Girls <sup>b</sup>			
Stress Composite	-0.22	1.68	-3.81 to 3.36
Distress Composite	-0.13	1.61	-2.73 to 3.07
Support Composite	0.44	1.54	-3.56 to 3.75
Child Problem Composite	-0.31	1.86	-4.97 to 3.53

Note. Because Composite scores are reported, tabled values are in the form of  $z$  scores.

<sup>a</sup>  $n=49$ , except for Child Problem Composite where  $n=42$ . <sup>b</sup>  $n=54$ .

In Table 9, intercorrelations amongst Composite variables, Stress, Distress, Support, and Child Behavior Problems are displayed; first for families of boys and then for families of girls. Note that, for girls, the independent variables were moderately intercorrelated and were all related to child behavior problems to approximately the same degree. This suggests that multicollinearity may be problematic when using these measures in regression analyses. In contrast, for boys, although independent variables were related to each other, they were associated differentially to child problems. It seems that there was something unique about each of these measures in their relationship with child adjustment.

Hierarchical Moderated Multiple Regression analyses were conducted separately for boys ( $n=49$ ) and for girls ( $n=54$ ). As in the main analysis, independent variables included Stress, Distress, and Support, and the two interaction terms, Stress x Support and Distress x Support. The dependent variable was Child Behavior Problems. The results are presented in Table 10. For families of boys, there was a main effect for Distress and a significant Distress x Support interaction term that operated in the now familiar, counterintuitive direction. In addition, the Stress x Support interaction was significant, and in the hypothesized direction. That is, for mothers of boys, as Support increased, the relationship between stress and child behavior appeared to weaken. On the other hand, for girls, there were no significant interaction terms, and there was only a main effect for Support<sup>5</sup>.

Table 9. Intercorrelations amongst Variables in the Moderator Model for Families of Boys and for Families of Girls.

Variable	1	2	3	4
Families of Boys <sup>a</sup>				
1. Stress Composite	—			
2. Distress Composite	.48 <sup>***</sup>	--		
3. Support Composite	-.20	-.52 <sup>***</sup>	--	
4. Child Problem Composite	.34 <sup>*</sup>	.52 <sup>***</sup>	-.12	--
Families of Girls <sup>b</sup>				
1. Stress Composite	--			
2. Distress Composite	.59 <sup>***</sup>	--		
3. Support Composite	-.41 <sup>**</sup>	-.37 <sup>**</sup>	--	
4. Child Problem Composite	.42 <sup>**</sup>	.43 <sup>***</sup>	-.47 <sup>***</sup>	--

<sup>a</sup>  $n=49$ , except for Child Problem Composite where  $n=42$ . <sup>b</sup>  $n=54$ .

\*  $p<.05$ . \*\*  $p<.01$ . \*\*\*  $p<.001$ .

Table 10. Hierarchical Multiple Regression Analyses Predicting Child Behavior Problems.  
Conducted by Child Gender.

Predictors	B	SE B	b	T	Sig T
Families of boys <sup>a</sup>					
Stress Composite	0.23	0.14	0.25	1.67	.103
Distress Composite	0.58	0.15	0.64	3.75	.001
Support Composite	0.18	0.15	0.19	1.27	.211
Stress x Support	-0.16	0.08	-0.32	-2.09	.044
Distress x Support	0.24	0.07	0.50	3.35	.002
$R^2_{\text{change}} = .17$ (due to interaction terms) $F_{\text{change}} = 5.88$ $p < .01$ $R^2 = .48$ (full model) $F(5,36) = 6.8$ $p < .001$					
Families of girls <sup>b</sup>					
Stress Composite	0.10	0.20	0.09	0.50	.621
Distress Composite	0.29	0.18	0.25	1.58	.119
Support Composite	-0.41	0.16	-0.34	-2.46	.017
Stress x Support	0.10	0.12	0.17	0.82	.417
Distress x Support	-0.04	0.14	-0.06	-0.31	.756
$R^2_{\text{change}} = .01$ (due to interaction terms) $F_{\text{change}} = 0.36$ $p > .05$ $R^2 = .33$ (full model) $F(5,48) = 4.70$ $p < .001$					

Note. Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup>  $n=42$ . <sup>b</sup>  $n=54$ .

## Secondary Analyses regarding the Proposed Model

### Social Competence

#### Descriptive Information

The mean child social competence level for this sample ( $N=103$ ), as measured by mother ratings on the Social Skills Rating System (Gresham & Elliott, 1990), was a standard score of 91.7, with a standard deviation of 17.9, and a range of 49 to 130. The mean score for boys was 89.02 ( $SD = 14.97$ ) and for girls was 94.15 ( $SD = 19.97$ ). This difference by child gender was not statistically significant.

Intercorrelations amongst Stress, Distress, Support and Child Social Competence are displayed in Table 11. As expected, whereas Child Social Competence was negatively related to Stress and Distress, it had a positive significant relationship with Support. Similarly, ratings of Child Behavior Problems were negatively related to Child Social Competence ( $r(94) = -.41, p < .001$ ).

#### Secondary Regression Analyses

Regression Diagnostics. The Main Moderated Multiple Regression Analysis was repeated using Child Social Competence as the dependent variable, in place of Child Behavior Problems. Assumptions of linearity, homogeneity of variance, and normality were tested prior to conducting this analysis. Again, plotted residuals showed no distinct pattern (reflecting linearity) and a constant distribution of residuals across levels of the predicted values (suggesting homogeneity of variance). The histogram of standardized residuals showed an approximately normal distribution. A search for possible outliers and/or influential points yielded no outliers, but one very dominant influential point. This case had a very large Mahalanobis Distance (45), and a large Leverage value (.44) and

Covariance Ratio (1.9). This case was deleted from further social competence analyses. It was not the same case that was reported as an influential point in the main analysis.

Regression Analysis, Total Sample. The full model tested in this analysis was:

$$\begin{aligned}\text{Child Social Competence} = & b_0 + b_1 \text{ Stress} + b_2 \text{ Distress} + b_3 \text{ Support} \\ & + b_4 (\text{Stress} \times \text{Support}) + b_5 (\text{Distress} \times \text{Support})\end{aligned}$$

Following from House (1981), theory would suggest that  $b_1$  and  $b_2$  should be negative, whereas  $b_3$  should be positive. Stress-buffering would be confirmed if  $b_1$  was significant and negative and  $b_4$  was significant and positive. Similarly,  $b_2$  should be significantly negative, while  $b_5$  should be significantly positive.

The results of this regression analysis appear in Table 12. The main effect variables were entered in the first block. All of the main effect independent variables asserted their influence in the expected directions. When the interaction terms were added in the next block, the full model accounted for 21 % of the variance in child competencies. However, the change in  $R^2$  was not significant, nor were the contributions of either of the product terms. Although it is recognized that multicollinearity between interaction terms may have contributed to a lack of significant findings for one or the other of these terms, it was deemed inappropriate to explore this further in that, overall, interaction terms were nonsignificant. With respect to main effects, only Support was a significant predictor of child social competence. There was a trend towards significance for the main effect Distress.



Table 11. Intercorrelations amongst Variables in the Moderator Model Predicting Child Social Competence<sup>a</sup>.

Variables	1	2	3	4
1. Stress Composite	--			
2. Distress Composite	.59 <sup>***</sup>	--		
3. Support Composite	-.40 <sup>***</sup>	-.47 <sup>***</sup>	--	
4. Child Social Competence	-.27 <sup>**</sup>	-.32 <sup>***</sup>	.36 <sup>***</sup>	--

Note. Independent variable Composites are as described previously. Child Social Competence = Total score on Social Skills Rating Scale (completed by mothers).

<sup>a</sup> N=103, except for Child Social Competence where N=102.

<sup>\*\*</sup>  $p < .01$ . <sup>\*\*\*</sup>  $p < .001$ .

Table 12. Hierarchical Multiple Regression Analysis Predicting Child Social Competence<sup>a</sup>.

Predictors	B	SE B	b	T	Sig T
Stress Composite	-0.64	1.26	-0.06	-0.51	.612
Distress Composite	-2.34	1.23	-0.23	-1.90	.060
Support Composite	2.95	1.11	0.28	2.67	.009
Stress x Support	-0.30	0.78	-0.05	-0.39	.698
Distress x Support	-1.10	0.69	-0.20	-1.59	.116

$$R^2_{\text{change}} = .05 \text{ (due to interaction terms)} \quad F_{\text{change}} = 3.07 \quad p > .05$$

$$R^2 = .21 \text{ (full model)} \quad F(5,96) = 5.22 \quad p < .001$$

Note. Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup> N=102.

Regression Analysis by Child Gender. Moderated Multiple Regression Analyses were conducted separately for families of boys and families of girls to determine if the gender differences observed when predicting child behavior problems were evident when considering child social competence. The results of these analyses are displayed in Table 13. For families of boys, the full model approached significance ( $F(47) = 2.08$ ,  $p = .09$ ). Although in a strict statistical sense this precludes interpretation of component variables, it is interesting to note that the main effect Distress variable was the only significant

predictor of child competencies, and there was a trend towards significance, in the unanticipated direction, for Distress x Support. For families of girls, in contrast, the full model was significant and accounted for 26% of the variance in Child Social Competence. However, the interaction terms did not add significantly to the model. Only Support was a significant predictor of child competencies for girls. It seems that the results by gender are not dissimilar from those obtained when considering child behavior problems<sup>6</sup>.

### Stress-Distress Relationship

#### Secondary Regression Analysis

Although the main focus of the present study involved examining the Moderator Model as it pertains to immigrant mothers and their children, it was deemed relevant to explore the degree to which the adult stress and coping model (e.g., Lazarus & Folkman, 1984; Kessler, 1982) applied to this immigrant sample of mothers. A Moderated Multiple Regression analysis was conducted to determine the extent to which the relationship between extrafamilial stress and maternal distress was buffered by perceived support.

Table 13. Summary of Hierarchical Multiple Regression Analyses Predicting Child Social Competence, Conducted by Child Gender.

Predictors	B	SE B	b	T	Sig T
Families of Boys <sup>a</sup>					
Stress Composite	-0.26	1.54	-0.03	-0.17	.865
Distress Composite	-3.52	1.65	-0.42	-2.13	.039
Support Composite	0.97	1.49	0.11	0.65	.517
Stress x Support	-0.36	1.18	-0.06	-0.30	.766
Distress x Support	-1.60	0.92	-0.35	-1.74	.090
$R^2_{\text{change}} = .11$ (due to interaction terms) $F_{\text{change}} = 2.89$ $p > .05$ $R^2 = 0.20$ (full model) $F(5,42) = 2.08$ $p > .05$					
Families of Girls <sup>b</sup>					
Stress Composite	-0.61	2.07	-0.05	-0.30	.768
Distress Composite	-2.00	1.86	-0.17	-1.08	.287
Support Composite	4.53	1.77	0.36	2.56	.014
Stress x Support	-0.24	1.14	-0.04	-0.21	.837
Distress x Support	-0.58	1.07	-0.10	-0.54	.589
$R^2_{\text{change}} = .02$ (due to interaction terms) $F_{\text{change}} = 0.65$ $p > .05$ $R^2 = 0.26$ (full model) $F(5,48) = 3.33$ $p < .01$					

Note. Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup>  $n=48$ . <sup>b</sup>  $n=54$ .

Regression Diagnostics. Regression diagnostics confirmed that the sample met assumptions for linearity, normality, and homogeneity of variance. No outliers were detected. The same point that emerged as influential in the Social Competence analysis was also omitted from this analysis (i.e., Mahalanobis Distance = 30, leverage = .29, covariance ratio = 1.39).

Regression Analysis. Centered Composite measures were used, and the equation to be tested took the form of:

$$\text{Distress} = b_0 + b_1 \text{Stress} + b_2 \text{Support} + b_3 (\text{Stress} \times \text{Support})$$

Again, following House's (1981) guidelines, evidence for stress-buffering would be obtained if  $b_1$  were significant and positive,  $b_2$  were significant and negative, and  $b_3$  were significant and negative (i.e., suggesting that the strength of the relationship between Stress and Distress decreases as Support increases). It may be seen in Table 14 that all of these conditions were satisfied in the analysis. Note in particular that, unlike the results of the primary analysis predicting Child Behavior Problems, the Stress  $\times$  Support interaction operated in the anticipated direction (i.e.,  $b_3$  was negative and significant). To confirm this, the sample was again subjected to a three-way split of low, medium, and high Support scores. Regression analyses across these three groups indicated that, as expected, the slope of the line depicting the relationship between Stress and Distress decreased with higher levels of Support (at low support  $B=.90$ , at medium support  $B=.43$ , and at high support,  $B=.19$ ). Therefore, the stress-buffering relationship observed in the North American health psychology literature was replicated in this Asian sample.

Table 14. Hierarchical Multiple Regression Analysis Predicting Maternal Distress<sup>a</sup>.

Predictors	B	SE B	b	T	Sig T
Stress Composite	0.53	0.09	0.50	6.05	.001
Support Composite	-0.27	0.09	-0.25	-3.05	.003
Stress x Support	-0.09	0.05	-0.15	-1.99	.049

$$R^2_{\text{change}} = .02 \text{ (due to interaction term)} \quad F_{\text{change}} = 3.96 \quad p < .05$$

$$R^2 = .44 \text{ (full model)} \quad F(3, 99) = 25.46 \quad p < .001$$

Note. Tabled values are for the full model. B = regression coefficient, SE B = standard error of regression coefficient, b = beta.

<sup>a</sup>N=103.

### Summary

In summary, there appears to be clear support for the Basic Model in predicting child behavior problems within this sample of new immigrant families. Mothers who reported higher levels of social support and lower extrafamilial stress and personal distress appeared to have children who showed fewer child problems than mothers with lower social support and higher stress and distress. Evidence in support of the Moderator Model was mixed, and seemed to vary, in part, with child gender. For mothers of boys, the influence of extrafamilial stress on child behavior was moderated by maternal perceived support. The counterintuitive significant Distress x Support also emerged only for boys.

For girls, there was no evidence that social support served a moderating role between stress or distress and female child behavior. With respect to the Basic Model, although only social support predicted child outcomes in the regression analysis for girls, bivariate correlations indicated that extrafamilial stress and maternal distress were also significantly related to child behavior problems.

## DISCUSSION

### Review of Findings

Although researchers have been examining adult and child adjustment following immigration for decades, theoretically-driven empirical study that integrates the experiences of parents and children is lacking. The present study contributes to this area by exploring, in the context of family-level influences, why it is that some children experience adjustment problems while others seem resilient to the stress of immigration. Based on predictions from the Basic North American Model of family stress and parent-child outcomes, it was hypothesized that in immigrant families in which parents reported higher levels of extrafamilial stress, distress, and/or social isolation, children would be at particular risk for showing behavior problems. Further, the parent-child Moderator Model suggests that immigrant children from stressed families, and/or with distressed mothers, should show fewer behavior problems if they are protected by family-level sources of strength, such as maternal social support. The present study provides an empirical test of these hypotheses.

### Summary Statistics

Like the findings drawn from the Ontario Child Health Study (Monroe-Blum et al., 1989), the immigrant children in this sample were rated as exhibiting an average level of behavior problems, relative to published norms for age and gender (Achenbach, 1991). A range of scores were reported, however, indicating that some children displayed a clinically-significant level of problems, whereas others did not. Similarly, the process of immigration was not uniformly perceived by mothers in this sample to be stressful. That is, although some mothers indicated by their responses that they had experienced



significant stress and personal distress since immigrating, others provided scores that reflect a relatively easy transition to life in Canada. This is in contrast to assumptions frequently made in the literature that immigration is, by definition, a stressful life event (Furnham & Bochner, 1986; Oberg, 1960). The results of this study highlight the fact that there are individual differences in the way in which the immigration process is experienced<sup>7</sup>.

The Basic Model of stress and parent-child outcomes contends that exosystem variables such as stress and microsystem variables such as maternal distress disrupt parent behavior, and, in turn, influence child adjustment. Within the present sample of immigrant families, correlational analyses were conducted in order to determine the degree to which mothers' perceptions of extrafamilial stress and personal distress coincided with behavior problems in their children. As predicted, child problems were related to higher levels of extrafamilial stress and maternal distress, and lower levels of social support for mothers. It appears then, on the basis of these correlational findings, that this North American model may have utility for understanding parent and child functioning in Asian immigrant families.

#### Moderated Multiple Regression Analysis on Child Behavior Problems

##### Primary Findings

In order to examine the degree to which the proposed Moderator Model was an appropriate representation of the relationships observed within this immigrant sample of parents and children, a Moderated Multiple Regression analysis was conducted. Main effect findings from this analysis support the fundamental contentions of the Basic Model. As expected, within this immigrant sample, extrafamilial stress and maternal distress were

significant predictors of child behavior. That is, mothers who reported higher extrafamilial stress levels had children with more behavior problems than mothers with lower stress, and mothers who reported higher personal distress had children with more behavior problems than mothers with lower distress. A significant main effect for maternal social support was not detected in this full regression model.

It was further hypothesized that, even amongst families experiencing high levels of stress and distress, some children would remain resilient due to the presence of family-level protective factors, such as maternal social support. Contrary to expectation, this test of the parent-child Moderator Model failed to find support within the full Asian immigrant sample. The results indicated that social support was not instrumental in minimizing the influence of either extrafamilial stress or maternal distress on child outcomes. Further, a significant Distress x Support interaction was observed operating in a direction opposite to what would be predicted by the buffering hypothesis (House, 1981).

#### Findings for families of boys

Before drawing conclusions on the basis of the above results, it is important to consider the pattern of findings by child gender. For families of boys, not unlike the results using the full sample, the Moderated Multiple Regression analysis revealed a main effect for maternal distress and a non-buffering Distress x Support interaction. In contrast to the findings of the full sample, however, a significant Stress x Support interaction term operating in a direction consistent with the buffering hypothesis was detected when the analysis was conducted exclusively for families of boys. Caution must be used, however, in interpreting this finding as evidence in favour of the buffering hypothesis. House (1981) asserted that buffering exists if two conditions are satisfied; if  $b_1$  is significant and positive

and if  $b_4$  is significant and negative. While the latter was true in this regression analysis, the main effect for Stress only approached significance in this full model ( $p=.103$ ) (see Table 10). Although it is anticipated that all of these effects would emerge as significant in the full model with a larger sample size, for now the support for the buffering hypothesis within families of boys must be considered tentative.

In both the full sample and for families of boys, the Moderated Multiple Regression analysis yielded a significant Distress x Support interaction term operating in a counterintuitive direction. Specifically, maternal distress and child behavior problems were more closely related at higher levels of social support than at lower levels. This does not imply, necessarily, that support facilitated the presentation of child problems within the distressed subset of mothers in this sample. In fact, mean levels suggest that at higher levels of social support, fewer symptoms of maternal distress and lower rates of child problems were generally reported. The interaction term emerged as significant because the relationship between these variables was stronger for mothers who reported a relatively high degree of social support and weaker for mothers indicating that they received lower levels of support.

Because major computational and statistical explanations for this unexpected significant interaction have been ruled out, it is appropriate to consider theoretical reasons for this finding. It is possible, for example, that supported mothers were more acculturated than mothers lacking social support in this sample. For instance, in traditional Chinese culture, responsibilities regarding child-rearing and household management generally fall to the mother, and she can expect little support or assistance

from her husband whose role it is to work outside the home to provide materially for the family (Lai & Yue, 1990; Lee, 1982). It seems plausible therefore that mothers in this sample who reported higher levels of support were from families with less traditional views regarding family role structures than were mothers who indicated lower levels of social and parenting support. Further, in this sample, mothers who indicated less support reported significantly lower English language proficiency than their more supported counterparts ( $t(59)=2.42, p<.02$ ). Language dysfluency in these low support mothers may index a restriction of social contacts to individuals within the Chinese community. In addition, lower support mothers were perceived by research assistants using Mother Global Ratings to be slightly less acculturated (mean value of 3 on the scale from 0 (not at all acculturated) to 6 (very acculturated)) than mothers with higher levels of support (mean value of 4 on the scale from 0 to 6). Lower support mothers were also rated by research assistants as less “open” in their interpersonal style during the home visit. Although neither the acculturation nor the openness ratings resulted in a statistically significant difference between groups, it should be noted that research assistant ratings were introduced to the procedure only after much of the data was already collected which resulted in a small sample of ratings ( $n=27$ ).

Perhaps then, relative to those indicating a low level of social support, supported mothers were more acculturated overall and had families that more closely resembled the Western families upon which the Basic Model was founded. If so, it follows that predictions of this model, like the presence of an association between parent and child adjustment, would be more accurate in describing the experiences of these more

acculturated immigrant families. In contrast, the Basic North American Model may be less applicable for mothers whose reports of lower support indicate a lesser degree of acculturation to the Canadian lifestyle. Further, if children are acculturating more quickly than their mothers, as is likely given children's mandatory school attendance (Hong, 1989; Lee, 1982), there may be several variables other than parent functioning that assert an influence on child adjustment in these low support families. In contrast to children who are a part of families in which parents are acculturated, perhaps these children of lower support mothers more often serve as the liaison between the family and the host society and are, therefore, more affected by factors in the new community environment than by intrafamilial, parent-child, influences. Thus, behavior problems, or the lack thereof, in these children might be better predicted by variables related to bicultural competence (e.g., presence of a bicultural mentor, awareness of social nuances and popular culture, membership in a schoolyard Chinese enclave) than by family or mother-level variables. Such a set of circumstances would serve to explain the weaker association between maternal and child adjustment when social support is lower, relative to when support, and acculturative level, is higher.

This explanation is also consistent with the finding that the counterintuitive maternal distress by social support interaction term emerged as significant only for families of boys. There is evidence in the literature that males tend to acculturate faster than females (Rogler, 1994), suggesting that one of the roles assumed by boys may be to serve as the intercultural liaison person for the family. In the present study, perhaps the boys in more isolated, and less acculturated, families were taking on this liaison role more often

than the girls in these families. As such, the adjustment of these boys would have been more reliant upon a multitude of outside influences than would the behavior of girls.

#### Findings for families of girls

The results of the Moderated Multiple Regression analysis for girls look different from those depicted in the full model, and from findings for families of boys. In the regression model for girls, the only significant main effect was for Support, which operated in the anticipated direction (i.e., the more social support perceived, the fewer child problems reported, and vice versa). Correlational analyses demonstrated, however, that extrafamilial stress and maternal distress were almost as highly correlated with child behavior problems as was perceived support, and that all three independent variables were moderately intercorrelated (see Table 9). This is in contrast to findings for boys for whom each of the independent variables, although themselves moderately interrelated, were associated with child behavior to different degrees. Multicollinearity therefore may have been more of an influence in predicting child outcomes within the regression model for families of girls. Two independent regression analyses were conducted for families of girls in an attempt to examine the separate influences of stress and distress (i.e., to examine effects without the collinearity between stress and distress). In the regression model that included extrafamilial stress, maternal perceived support, and the interaction between stress and support, there were significant main effects for both Stress ( $b(55) = .27, p < .05$ ) and Support ( $b(55) = -.37, p < .01$ ). Similarly, in the model that included maternal distress, perceived support, and the Distress x Support interaction, both Distress ( $b(55) = .28, p < .05$ ) and Support ( $b(55) = -.36, p < .01$ ) were significant predictors of child outcome.

When considered in the context of the correlational findings, these analyses for families of girls largely support the Basic Model.

With respect to the buffering role of maternal social support, the Moderated Multiple Regression analyses revealed no moderator effects for families of girls (i.e., in either the full model or in the separate analyses for Stress and Distress). Unlike boys, for whom the influence of stress on child behavior appeared to be diminished by higher levels of social support, girls were not afforded protection from extrafamilial stress by this maternal variable. One might be tempted to explain this difference by suggesting that because boys tend to be more sensitive to family disruptions and therefore more likely to show behavior problems than girls (Reid & Crisafulli, 1990), mothers of boys sought out sources of support in response to their son's difficulties, whereas mothers of girls did not have the need to do so. A comparison of means, however, indicated that mothers of girls had significantly more social support than mothers of boys. A second possible explanation for the lack of buffering findings for girls is that there may be some variable other than maternal perceived support that better serves to lessen the influence of stress and distress on immigrant child adjustment. It may be that maternal social support is helpful for girls as a main effect variable, but that some other variable that is more proximal to parent-child interactions (e.g., marital satisfaction, maintenance of family rituals/routines) may be more potent in buffering child adjustment when parents are stressed or distressed.

#### Summary of Primary Analyses

Taken together, the findings from this study suggest that the Basic Model was a good fit for the Asian immigrant mothers and their children in this sample. Extrafamilial

stress, maternal distress, and maternal social support, were all correlated with child behavior outcomes in the expected manner. Although for families of boys, Distress was the only significant main effect in the regression model, and for girls only Support was significant, in general variables were correlated with outcomes as expected. With respect to the buffering hypothesis, for boys, there was evidence that part of the Moderator Model also predicted child outcomes as social support appeared to serve as a buffer for extrafamilial stress. Such buffering did not occur for girls, and maternal distress was not buffered by support for either gender. In fact, for boys, a significant interaction term that operated in an unanticipated direction emerged, such that the presence of high levels of social support facilitated the relationship between maternal distress and child behavior. It was suggested that this counterintuitive result may have been a function of differential acculturation between parents and children at lower levels of support, making boys susceptible to influences from outside of the family and less susceptible to circumstances within the family<sup>8</sup>.

Given that only tentative support for the Moderator Model was found in this study, and even then only for boys, it is worth considering how variability in immigrant child adjustment might be accounted for by the Basic Model of stress and parent-child outcomes. The results of the present study suggest that this Basic Model, in and of itself, could explain why some children exhibit behavior problems following migration whereas others do not. Specifically, only if one assumes that immigration is inherently and uniformly stressful, and always leads to parental distress, does this model predict that all immigrant children should show behavior problems. If, on the other hand, it is deemed



possible that immigration may be more or less stressful or distressing depending on pre-migration and post-migration circumstances, then this model predicts that some children will show problems and others will not, strictly as a function of stress and parent distress levels. In the present study, it was clear that respondents did not all perceive immigration to be a stressful life event, and that mothers were not all experiencing post-migration distress. Moreover, child problems varied with the degree of stress, distress, and support reported. Therefore, although it would be premature to abandon the Moderator Model as a tool for understanding parent and child adjustment following immigration, main effects findings go a long way to explaining why some children experience difficulties while others remain invulnerable.

#### Moderated Multiple Regression Analysis on Child Social Competence

In response to increasing interest in children's prosocial capabilities (Parker & Asher, 1987; Selman et al., 1992), and the understanding that social competence is more than the inverse of behavior problems (Kazdin, 1992), in the present study Moderated Multiple Regression analyses were also conducted using a measure of child competence as the dependent variable. Although no specific predictions were made for this exploratory analysis, it was anticipated that the relationships suggested by the Basic and Moderator Models would be reflected in the findings. A second reason for measuring this aspect of child behavior evolved from a concern that behavior problems might be underreported in this sample due to the cultural stigma attached to psychological problems. Child social competence was assessed so as to provide a more benign, and perhaps more culturally acceptable, forum for describing child adjustment.

At the level of the full sample, the regression model predicting Child Social Competence looked quite different than the results obtained for problematic child behavior. Although correlational analyses demonstrated significant relationships between all of the main effect independent variables and child competencies in the predicted directions, in the regression analysis, only Support was a significant predictor of Child Social Competence. There was a trend towards significance for Distress, but extrafamilial stress did not predict child competencies. With respect to the Moderator Model, neither the Stress x Support interaction, nor the Distress x Support interaction, was significant in the full model, suggesting that Support did not serve a buffering function in relation to children's prosocial competence.

Like the findings from the primary analyses, however, gender differences were apparent when predicting Child Social Competence. When the sample was divided by child gender, although the results of the regression analyses for families of boys only approached significance, if the contributions of constituent variables were tentatively interpreted, the pattern of results more closely mirrored the findings obtained when considering child problems. That is, for families of boys, the main effect for Distress was a significant predictor of child competencies, and the counterintuitive Distress x Support interaction approached significance. Contrary to primary findings, Stress x Support was nonsignificant. For families of girls, Support was the only significant predictor of Child Social Competence, as was the case when considering child problems. It appears then that the gender differences may be robust, in that no matter which aspect of child

functioning is measured, relationships with exosystem and microsystem variables seem to be present.

Ratings of Child Social Competence were only moderately associated with the Child Behavior Problem Composite ( $r(95) = -.41, p < .001$ ). It seems clear that these constructs are tapping unique aspect of child functioning. It is not surprising, therefore, that the results for this dependent variable might vary somewhat from those obtained in the primary analysis. Also of note is that underreporting of child problems did not appear to be an issue in this study, as mothers reported a range of adjustment difficulties in their children.

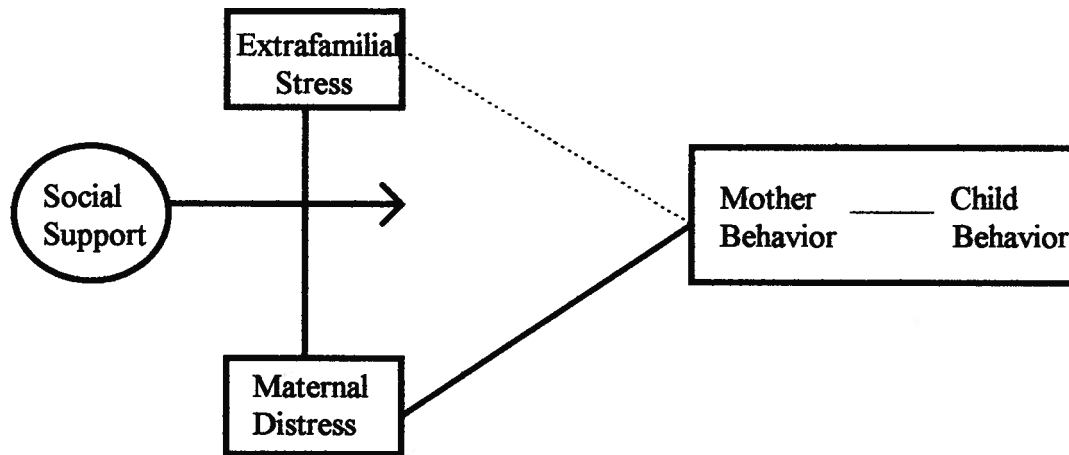
#### Moderated Multiple Regression Analysis On Maternal Distress

In the health psychology literature, the role of social support as a moderator between stress and psychological adjustment has been well documented (House, 1981; Kessler, 1982). The bulk of this literature suggests that adults who perceive that they are supported show fewer mental health problems following a stressor than adults who feel that social support is lacking. Based on this literature, a secondary hypothesis tested in this study was that support would behave as a moderator of extrafamilial stress at the level of maternal distress, irrespective of child outcomes. The results of a Moderated Multiple Regression analysis suggest that maternal social support does serve a buffering function in the relationship between extrafamilial stress and maternal distress. Immigrant mothers in this sample who reported higher degrees of stress and lower levels of support had a higher level of overall distress than stressed mothers who perceived that they were well-supported. This is an important finding in that it serves as a cross-cultural replication of

the stress-buffering findings in the North American health psychology literature. There were also main effects for extrafamilial stress and social support on maternal distress, in the anticipated directions (i.e., mothers with higher stress reported higher distress than mothers with lower stress and mothers with higher support reported lower distress than mothers with lower support).

It is conceivable, given the moderator role of support at the parental level, that stress not only exerts an independent effect on child behavior, but that it has effects that are mediated through relationships with support and maternal distress. That is, for families low in support, the impact of migration stress on children may be felt both directly, and through resultant maternal distress and disruptive parenting abilities. On the other hand, stressed mothers who perceive that they are supported are less likely to develop symptoms of distress and to experience disruptions in parenting. These proposed relationships are depicted in Figure 4. More sophisticated, large sample, statistical investigation is required to test these suggested pathways, but they offer an intuitively appealing, theoretically-grounded, direction for further study.

**Figure 4. Proposed Model Integrating the Moderating Role of Social Support, and the Mediating Role of Maternal Distress, in Predicting Child Behavior.**



### Methodological Issues

#### Reliance on Maternal Perceptions of Self and Family

For both cultural and theoretical reasons, it was necessary to rely upon maternal reports for much of the information gleaned through this study. At a cultural level, it has been widely reported that privacy is highly valued in Chinese culture (Hong, 1989; Lee, 1982). Respecting this, confidential self- and family-report measures were selected as they were deemed to be the least intrusive means of gathering information within this community. In terms of reporting child problems, there were also theoretical reasons for asking parents to make ratings. First, clinical research suggests that children come to the attention of mental health professionals largely in response to adult perceptions of child behavior problems (Griest et al., 1980; Zahner, Pawelkiewicz, DeFrancesco, & Adnopolz,

1992). Thus, if the concern is with perceived child functioning, familiar adults, who can comment on the child's behavior across a variety of settings, are probably in the best position to rate behavior. It has been recommended that the assessments of several individuals be used to provide the most comprehensive picture of the child's level of behavioral/emotional functioning (Achenbach et al., 1987; Reich & Earls, 1987). In the present study, mother reports of child adjustment were supplemented by the ratings of another adult familiar with the child, child self-reports, and global ratings by research assistants. Only maternal and other adult perceptions were, however, correlated strongly enough to be combined into a composite score. It is perhaps not surprising that the adult and child ratings were only mildly associated, as previous research has shown that adults and children are bothered by different types of behavior (Edelbrock, Costello, Dulcan, Conover, & Kalas, 1986; Tarullo, Richardson, Radke-Yarrow, & Martinez, 1995), and that they routinely show less agreement in their reports of problems than do mothers and fathers or parents and teachers (Achenbach et al., 1987). The fact that research assistant ratings of child behavior were not significantly correlated with the perceptions of other informants was likely the result of a limited opportunity to observe child behavior and of ceiling effects in these ratings.

The decision to utilize self-report instruments to tap constructs such as stress, distress and support was guided by theoretical models that highlight the importance of the personal appraisal of a stressor in predicting subsequent psychological health. Specifically, these models suggest that health outcomes are more dependent on the individual's perception of a life event, and an appraisal of his/her coping resources, than on any

“actual” threat associated with the event (Lazarus & Folkman, 1984). In this study, as with child reports of behavior, child perceptions of extrafamilial stress were too different from maternal impressions to permit the formation of a combined stress score. It is recognized that maternal ratings may not have reflected a true objective reality or the experiences of others in the family. At the same time, theory predicts that these stress appraisals would be most pertinent in relation to the mother’s own mental health status (Kanner et al., 1984; Lazarus & Folkman, 1984), and perhaps most related to her parenting behavior, attributions for child behavior, and subsequent child outcomes (Crnic & Greenberg, 1990; Krech & Johnston, 1991; Middlebrook & Forehand, 1985). Similarly, perceptions of support have been shown to be better predictors of outcomes than support-seeking or size of support network (Wethington & Kessler, 1986).

Perhaps more at issue than the fact that ratings are subjective, is the associated concern that extrafamilial stress, maternal distress, and perceived support are interrelated constructs. To the degree that these variables overlap, the unique contribution of each in predicting child outcomes is difficult to ascertain. For instance, it is possible that distressed mothers in this sample selectively recalled negative life events and perceived failures in support networks, such that little else besides distress is being measured by these other instruments. This problem of conceptual and operational overlap across variables is present throughout much of the stress and coping literature (e.g., Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984; Lazarus, DeLongis, Folkman, & Gruen, 1985).

Similarly, with respect to the interplay between independent and dependent variables, there has been extensive discussion in the parenting literature regarding the degree to which mothers who are experiencing a depressed mood can accurately provide ratings of their children's behavior (Richters, 1992). The suggestion has been that distressed mothers distort the frequency and intensity of child problems as a result of a lowered tolerance for behavioral difficulties (Schaughency & Lacey, 1985). The results of several recent studies have, however, begun to refute this assumption (see review by Richters, 1992). Most recently, comparing mother and father agreement in mood-disordered and well families, Tarullo and her colleagues (1995) determined that there was higher cross-informant concordance in families with one depressed parent than in well families. Such research calls into question the hypothesis that maternal distress is a distorting variable in reporting about child behavior.

Several precautions were taken in the present study to minimize the influence of conceptual overlap across independent and/or dependent variables. For example, whenever possible, an attempt was made to select measures that were comprised of objective items. This was a priority, not only for ease of translation and cross-cultural understanding, but also to inhibit overly interpretive responding amongst participants (e.g., a vague item, such as "I haven't been feeling good lately" might inspire a range of responses depending upon whether the phrase suggested to the individual physical or psychological well-being, how the respondent defined "lately," etc.). Also, response bias potentially induced by context was controlled by counterbalancing measures so that participants were not consistently primed by one of the instruments to respond in one way



or another. For instance, if measures of distress consistently preceded measures of stress, then mothers' recall of stressful events might have been unduly influenced by attention to their mood state. Similarly, different response formats were used for measures of support, relative to measures of stress or distress, and several items on each scale were reverse-scored, so as to avoid problems with systematically biased responding (Paulhus, 1991). In addition, the composite child behavior score included not only mother ratings, but also the perceptions of another independent adult rater.

Finally, study data suggests that variables assessed in this study were sufficiently independent to permit meaningful interpretation of unique contributions. A correlational analysis revealed that, although Stress, Distress, and Support Composites were related, the overlap was only moderate. In addition, for boys, these independent variables seemed to operate differently in predicting child problems, suggesting that they were distinct constructs.

#### Reliance on a Correlational Design

The present research was correlational in nature. None of the variables were manipulated, rather, they were assessed as they occurred naturally in each family's experience. As a result, no conclusions regarding causal relationships are possible. Although knowledge of the literature might lead one to favour explanations that suggest that stress and distress disrupted parenting and, in turn, child behavior (e.g., Conger et al., 1993), it is also conceivable that disturbed child behavior might have caused parents to feel more stressed and distressed (Bell & Harper, 1977). Alternatively an additional, unmeasured variable, such as marital satisfaction, might have accounted for variations

among exosystem and microsystem variables and child problems. It would be clearly inappropriate to advance causal explanations for the results of this correlational study with any degree of certainty.

Except in analogue studies (e.g., Krech & Johnston, 1992; Zekoski, O'Hara, & Wills, 1987), variables such as parent stress and distress are not amenable to manipulation. It is therefore difficult to design externally valid studies in this area that speak to the issue of causality. Some investigators have suggested that the findings from cross-sectional studies would be complemented by the use of longitudinal designs in which natural variations in stress and distress could be examined (Black & Holden, 1995). A program of research that includes longitudinal study of the immigration and acculturation process, and its association with child adjustment, would be a welcome contribution to this area.

#### Underreporting of Psychological Concerns

As mentioned previously, symptom underreporting has been identified as an issue within Asian cultures (Sue & Morishima, 1982). Two major explanations for this have been postulated; social desirability as a function of cultural stigmatization associated with mental illness and cross-cultural differences in symptom expression (i.e., emphasis on somatic versus psychological/affective symptomatology) (Kleinman & Kleinman, 1985; Sue & Sue, 1987; Yamamoto & Acosta, 1982; Zhang, 1994). Regardless of its source, in the present study, problems with underreporting of symptoms were anticipated.

#### Social Desirability

Several steps were taken to minimize the impact of social desirability. For example, as outlined in the Methods chapter, care was taken to ensure that questionnaire

items were culturally-sensitive and nonthreatening. In addition, face-to-face contact was made with every participant and mothers were ensured that their responses would be confidential, and that they could leave blank any items that left them feeling uncomfortable. Participants in this study appeared willing to acknowledge feelings of stress, distress, and isolation. There were very few examples of mothers who provided uniformly low scores across all constructs (i.e., less than 10% scored below one standard deviation on all measures). Thus, although the mothers in this sample may still have been underreporting problems, they were willing to acknowledge that they experienced at least some degree of stress, emotional upset, loneliness, and/or difficulties with their child.

#### Cross-Cultural Differences in Symptom Expression

Cognizant of the possibility that study participants might not experience, or attend to, the emotional aspects of their distress, measures were chosen so as to assess mental health problems, broadly defined. Specifically, a somatic scale of distress was used to supplement the CES-D so as to capture this aspect of psychological upset if it was the preferred mode of presentation within this sample. The results suggest that despite the reported preference amongst Asian cultures for endorsing somatic expressions of distress, study participants displayed no difficulty in describing emotional/psychological experiences. Mothers described a range of symptoms, covering affective, interpersonal, and health concerns. It seems then, that if asked to disclose personal psychological information in privacy to a trusted individual, the mothers in this sample were willing and able to do so.

### Translation of, and Modifications to, Standard Instruments

In order to increase the probability of recruiting a representative sample of Hong Kong immigrants, it was deemed necessary to translate questionnaires into Chinese. A careful process was followed in selecting and translating measures for this study. Despite concerns that measures would not translate effectively, all instruments used in the formal analyses were internally consistent and showed anticipated intercorrelations across independent and dependent variables. This is consistent with previous findings that suggest that carefully translated measures retain their psychometric properties (e.g., Noh et al., 1992).

This sample of immigrant families from Hong Kong seemed reasonably comfortable with the process of research. For the most part, participants required little guidance in the task of questionnaire completion and often hurried research assistants through their script of instructions. In retrospect then, it probably was not necessary to modify standard measures to the extent that was recommended by cultural consultants. It seems likely that this sample could have easily managed the “confusion” of scales with differing ranges of response, particularly given the careful explanations offered by research assistants during the home visit. For instance, it was probably unnecessary to change the scale of the SCL-90-R from the standard 5-point version to a 4-point scale (as was done to be consistent with other measures of distress and stress). Similarly, on the Hassles Scale, participants could have been asked to think about stressors that they had experienced earlier that day, rather than over the past week. Had such formatting changes

been avoided, interpretation of scores relative to published norms would have been possible.

### The Challenges of Cross-Cultural Research

Conducting research within a culture that is different from one's own can be a challenging endeavor. In its early stages, the present research involved a gradual process of becoming acquainted with cultural values, mores, and nuances, while at the same time building a relationship of trust with community members. In general, Chinese community agencies were receptive to the proposed research and assisted with promotion of the project. Accessing the community, however, was only part of the difficulty. More daunting still was the language and cultural barrier with potential study participants. Every detail had to be considered from a cultural and logistical perspective. For instance, written and oral translations were required for a number of administrative requirements that surfaced as the study progressed (e.g., providing a translated recording for interested mothers to call for more information about the study, coordinating advertisement of the study at exclusively Chinese-speaking media centers, describing the study to interested Chinese mall patrons, etc.). It was not feasible to request assistance from community agencies for every translation or interpretation need. Bicultural research assistants provided a necessary cultural and language bridge to the community.

Although the participation of bilingual, bicultural research assistants was critical to the success of this project, reliance on these undergraduates posed additional challenges. Their involvement required a substantial investment of time and energy. For example, an extensive training protocol was followed in order to be sure that each assistant could

convey the correct information to study participants in a professional manner, could anticipate questions and problems, and could establish rapport with families in a short period of time. Further, regular meetings were conducted to ensure that procedures continued to be followed as agreed upon, to handle administrative details, and to discuss issues that arose during home visits. Most demanding logistically was the need to coordinate recruiting sessions, home visits, and organizational meetings around the busy schedules of these 13 undergraduates.

### Applications

The results of this study offer several suggestions for meeting the mental health needs of immigrant families. First, with respect to assessment, these research findings highlight the importance of including measures of parental stress, distress, and support systems in clinical protocols designed to detect immigrant children at risk. The results suggest that these family-level influences are predictive of child problems. In terms of instrumentation, at least for this sample of immigrants from Hong Kong, translated North American measures appeared culturally-appropriate and were sensitive to detect a range of symptomatology.

Secondly, and in a related manner, parent well-being appears to be predictive of child outcomes, particularly for boys. From an intervention perspective, it follows that new immigrant parents who are experiencing significant stress associated with the cultural transition may be well-served by taking advantage of community services designed to alleviate settlement concerns and to assist with stress management more generally.

Further, the study suggests that even if mothers are experiencing high levels of stress, if they feel supported, then distress is minimized, relative to mothers who perceive themselves to be isolated. On the basis of these findings, mental health agencies that provide services to new immigrants, particularly newcomers from Hong Kong, might play a role in helping isolated families to build supportive ties in Canada. This might be accomplished through formal social support groups for adult immigrants, or, more informally, through accessible community programming such as cooking classes. The present study suggests that in addition to furthering sources of self-validation for the mother (Ishiyama, 1989), the acquisition of support will benefit children indirectly through maternal well-being and positive parenting behavior.

#### Future Directions

As one of a handful of investigations in an emerging field of study, the present research was exploratory in nature and, as such, possibly raised more questions than it answered. It is hoped that the findings will stimulate interest in this area that is much in need of further study. Future research could take any one of several possible directions. For example, an attempt to replicate the findings of this study using a design that goes beyond self-report data would be useful. In particular, a study in which maternal distress was assessed independently (e.g., through a clinical interview, behavioral observations, spousal ratings) would be a helpful addition to the literature. Experience with the present sample would suggest that members of the local Chinese community would be willing to tolerate this level of involvement if interviews were handled sensitively and were conducted in Chinese. A second methodological advance would be to design a study in which family adjustment could be followed longitudinally through the immigration and

acculturation process. In this way, problems that lie dormant following the acute stress of the move, may be observed as they develop over time. In addition, unlike many stressors, immigration is a predictable life event. In most cases, there is a period of time prior to the move in which families can anticipate their new lifestyle. As such, the phenomenon of immigration affords researchers the opportunity to study families both before and after the stressor. This would be an exciting future direction in that longitudinal work of this kind would better permit an understanding of causal relationships. Similarly, the role of acculturation and bicultural identity development in both parent and child adjustment could be also be measured and more systematically explored. Findings from the present study suggest that this might be a particularly fruitful research avenue. Specifically, use of measures of acculturation designed specifically for adults and for children, in a similarly designed study might shed light on the counterintuitive finding regarding the Distress x Support interaction term.

Future study might also be focussed on other variables that could potentially serve a buffering function between immigration stress, distress, and child adjustment. Family-level variables such as differential acculturation, maintenance of family/cultural routines, and marital satisfaction are likely candidates. In addition, a more complete model would also include measurement of parent behavior, either through self-report or structured observational methods. Similarly, child-level factors such as role flexibility, temperament/personality (e.g., adaptability, emotionality, reactivity, ability to self-regulate) or personal support systems (school peers or teachers) might be considered. Because findings from the present study suggest that many of these variables will protect



boys and girls differentially, it is recommended that gender differences be considered in future research. Finally, the degree to which the current findings generalize; to other immigrant samples, to children of different ages (under 5 years and/or adolescents), and/or to fathers, would be a pertinent avenue for further study.

### Conclusions

This study builds on the existing literature by providing a theoretical framework for understanding children's behavioral adjustment following immigration. In so doing, it moves the field beyond immigrant versus nonimmigrant comparisons to a place of considering differences in the experience of migration at the level of the family or the individual. Further, given that this theoretical framework was developed through a merging of several contemporary North American literatures, this study demonstrates that Western constructs and relationships have cross-cultural utility.

## FOOTNOTES

<sup>1</sup> Training manual is available for review upon request.

<sup>2</sup> In addition to the measures described in this section, a few instruments were included in the questionnaire package but were not analyzed because they were not the focus of the present research effort. These include: qualitative questions on the Family Information Questionnaire regarding the family's strategies for coping with the stress of migration, a measure of maternal optimism (Life Orientation Test; Scheier & Carver, 1985), and questions regarding past and anticipated mental health service utilization.

<sup>3</sup> Guidelines for child ratings are available for review upon request.

<sup>4</sup> To further confirm this statistically, quadratic terms were systematically entered in the regression model (e.g., Stress<sup>2</sup>) and residual plots were examined. There was no evidence that the addition of these items improved the quality of the plots.

<sup>5</sup> Although the model appears to fit differently depending upon child gender, a statistical comparison revealed no significant difference in the contribution made by each variable for families of boys relative to families of girls.

<sup>6</sup> There was no significant difference across child gender in the contribution made by Distress, or by either of the interaction terms. The slope for Support, however, was significantly steeper for families of girls relative to boys, suggesting that Support is a stronger predictor for girls.

<sup>7</sup> In response to concerns that newcomers who expressed intent to stay in Canada (75% of sample) may have had different migration experiences than those who planned to return to Hong Kong (or who were unsure of their plans), the primary analyses were again conducted, this time excluding those who might be better classified as sojourners. The overall results were similar to those obtained using the full sample. The full model was significant ( $R^2=.34$ ,  $F=10.3$ ,  $p<.001$ ), and there was a significant main effect for Distress and a trend towards significance for the Distress by Support interaction term in the counterintuitive direction. Contrary to findings with the full sample, however, there was a significant main effect for Support, but not for Stress. These results suggest that it may be important to control for long-term settlement plans in future studies.

<sup>8</sup> In an attempt to determine if the source of support played a role in this counterintuitive finding, the degree of support received from family, friends, and a special person, was examined at high and low levels of support. No significant differences were detected across levels of support for any of these sources, suggesting that the source of support is less important than the overall perceived presence of support in understanding this finding.

## BIBLIOGRAPHY

- Abidin, R.R. (1990). Introduction to the special issue: The stresses of parenting. Journal of Clinical Child Psychology, 19, 298-301.
- Achenbach, T.M. (1991). Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychiatry.
- Achenbach, T.M. & Edelbrock, C.S. (1978). The classification of child psychopathology: A review and analysis of empirical efforts. Psychological Bulletin, 85, 1275-1301.
- Achenbach, T.M., McConaughy, S.H., & Howell, C.T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. Psychological Bulletin, 101, 213-232.
- Adler, P.S. (1975). The transitional experience: An alternative view of culture shock. Journal of Humanistic Psychology, 15(4), 13-23.
- Aiken, L.S. & West, S.G. (1991). Multiple regression: Testing and interpreting interactions. Newbury Park, CA: Sage.
- Ainsworth, M.D. & Bell, S.M. (1974). Mother-infant interaction and the development of competence. In K. Connolly & J. Bruner (Eds.), The growth of competence. London: Academic Press.
- Alloway, R. & Bebbington, P. (1987). The buffer theory of social support: A review of the literature. Psychological Medicine, 17, 91-108.
- Almirol, E.B. (1982). Rights and obligations in Filipino-American families. Journal of Comparative Family Studies, 13, 291-306.
- Amaro, H. & Russo, N.F. (1987). Hispanic women and mental health: An overview of contemporary issues in research and practice. Psychology of Women Quarterly, 11, 393-407.
- Andresen, P.A. & Telleen, S.L. (1992). The relationship between social support and maternal behaviors and attitudes: A meta-analytic review. American Journal of Community Psychology, 20(6), 753-774.
- Aneshensel, C.S. & Frerichs, R.R. (1983). Stress, support and depression: A longitudinal causal model. Journal of Community Psychology, 10, 363-376.

- Anthony, E.J. (1974). The syndrome of the psychologically invulnerable child. In E.J. Anthony & C. Koupnick (Eds.), The child in his family: Children at psychiatric risk (pp. 529-544). New York: Wiley.
- Anthony, E.J. & Cohler, B.J. (1987). The invulnerable child. New York: Guilford Press.
- Arieti, S. & Bemporad, J.R. (1980). The psychological organization of depression. American Journal of Psychiatry, 137, 1360-1365.
- Aronowitz, M. (1984). The social and emotional adjustment of immigrant children: A review of the literature. International Migration Review, 18(2), 237-257.
- Bagley, C. (1972). Deviant behaviour in English and West Indian school children. Research in Education, 8, 45- 55.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.
- Barrera, M. (1981). Social support's role in the adjustment of pregnant adolescents: Assessment issues and findings. In B.H. Gottlieb (Ed.), Social networks and social support in community mental health (pp. 69-96). Beverly Hills: Sage Publications.
- Bebbington, P.E., Hurry, J., & Tennant, C. (1981). Psychiatric disorders in selected immigrant groups in Camberwell. Social Psychiatry, 16, 43-51.
- Beckwith, L., Cohen, S., Kopp, C., Parmelee, A., & Marci, T. (1976). Caregiver-infant interaction and early cognitive development in preterm infants. Child Development, 47, 579-587.
- Befera, M.S. & Barkley, R.A. (1985). Hyperactive and normal girls and boys: Mother-child interaction, parent psychiatric status and child psychopathology. Journal of Child Psychology and Psychiatry, 26, 439-452.
- Beiser, M. (1988). Influences of time, ethnicity, and attachment on depression in Southeast Asian refugees. American Journal of Psychiatry, 145, 46-51.
- Beiser, M. (1990). Migration: Opportunity or mental health risk. Triangle, 29, 83-89.
- Beiser, M. & Fleming, J.A. (1986). Measuring psychiatric disorder among Southeast Asian refugees. Psychological Medicine, 16, 627-639.

- Beiser, M. & Wood, M. (1986). Canadian task force on mental health issues affecting immigrants and refugees: Review of the literature on migrant mental health. Ottawa: Health & Welfare, Canada.
- Bell, R.Q. & Harper, L.V. (1977). Child effects on adults. Hillsdale, N.J.: Erlbaum.
- Belsky, J. (1984). The determinants of parenting: A process model. Child Development, 55, 83-96.
- Belsky, J. & Vondra, J. (1989). Lessons from child abuse: The determinants of parenting. In D. Cicchetti & V. Carlson (Eds.), Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect (pp. 153-202). New York: Cambridge University Press.
- Berkman, L.F. & Syme, S.L. (1979). Social networks, host resistance and mortality: A nine-year follow-up study of Alameda County residents. American Journal of Epidemiology, 109, 186-204.
- Berry, J. W. & Kim, U. (1988). Acculturation and mental health. In P. Dasen, J.W. Berry, & N. Sartorius (Eds.), Cross-Cultural Psychology and Health: Towards Applications (pp. 207-336). London: Sage.
- Berry, J., Kim, U., Minde, T. & Mok, D. (1987). Comparative studies of acculturative stress. International Migration Review, 21, 491-511.
- Bhatnagar, J.K. (1980). Linguistic behavior and adjustment of immigrant children in French and English schools in Montreal. International Review of Applied Psychology, 29(1-2), 141-158.
- Biglan, A., Hops, H., & Sherman, L. (1988). Coercive family processes and maternal depression. In R.D. Peters Y R.J. McMahon (Eds.), Social learning and systems approaches to marriage and the family (pp. 72-103). New York: Brunner/Mazel.
- Bird, H.R. & Canino, G. (1987). Use of the Child Behavior Checklist as a screening instrument for epidemiological research in child psychiatry: Results of a pilot study. Journal of the American Academy of Child and Adolescent Psychiatry, 26(2), 207-213.
- Black, M.M. & Holden, E.W. (1995). Longitudinal intervention research in children's health and development. Journal of Clinical Child Psychology, 24(2), 163-172.
- Blackwell, P. (April, 1991). Maternal perceptions of child behavior as a function of maternal affect, social support and child behavior. Paper presented at the biannual meeting of the Society for Research in Child Development, Seattle, WA.

- Bland, R.C. & Orn, H. (1981). Schizophrenia: Sociocultural factors. Canadian Journal of Psychiatry, 26(3), 186-188.
- Bleuler, M. (1978). The schizophrenic disorders: Long-term patient and family studies. New Haven, Yale University Press.
- Bradley, S. & Sloman, L. (1975). Elective mutism in immigrant families. Journal of the American Academy of Child Psychiatry, 14, 510-514.
- Bradley, R.H., Caldwell, B.M., & Elardo, R. (1979). Home environment and cognitive development in the first two years: A cross-lagged panel analysis. Developmental Psychology, 15, 246-250.
- Brislin, R.W. (1980). Translation and content analysis of oral and written material. In H.C. Triandis & J.D. Draguns (Eds.), Handbook of cross-cultural psychology, vol. 2 (pp. 389-444). Boston: Allyn and Bacon, Inc.
- Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Cambridge, Mass.: Harvard University Press.
- Brown, G.W. & Harris, T. (1978). Social origins of depression: A study of psychiatric disorders in women. London: Tavistock Publications Limited.
- Capaldi, D. & Patterson, G.R. (1987). An approach to the problem of recruitment and retention rates for longitudinal research. Behavioral Assessment, 9, 169-177.
- Cassel, J. (1976). The contribution of the social environment to host resistance. American Journal of Epidemiology, 104, 107-123.
- Christensen, A., Phillips, S., Glasgow, R.E., & Johnson, S.M. (1983). Parental characteristics and interactional dysfunction in families with child behavior problems: A preliminary investigation. Journal of Abnormal Child Psychology, 11(1), 153-166.
- Christiansen, J.M., Thornley-Brown, A., & Robinson, J.A. (1982). West Indians in Toronto: Implications for helping professionals. Toronto: Family Services of Metropolitan Toronto.
- Citizenship and Immigration Canada (1994a). A broader vision: Immigration and citizenship plan 1995-2000. Minister of Supply and Services Canada.
- Citizenship and Immigration Canada (1994b). Into the 21st century: A strategy for immigration and citizenship. Minister of Supply and Services Canada.

- Citizenship and Immigration Canada (1994c). Facts and figures: Overview of immigration. Minister of Supply and Services Canada.
- Cleary, P.D. & Kessler, R.C. (1982). The estimation and interpretation of modifier effects. Journal of Health and Social Behavior, 23, 159-169.
- Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38(5), 300-314.
- Cochran, M.M., & Brassard, J.A. (1979). Child development and personal social networks. Child Development, 50, 601-616.
- Cochrane, R. & Bal, S. (1987). Migration and schizophrenia: an examination of five hypotheses. Social Psychiatry, 22, 181-191.
- Cochrane, R. (1980). Mental illness in England, in Scotland and in Scots living in England. Social Psychiatry, 15, 9-15.
- Cohen, J. (1985). Statistical power analysis for the behavioral sciences. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cohen, J. & Cohen, P. (1983). Applied multiple regression correlation analyses for the behavioral sciences, second edition. Hillsdale, NJ: Erlbaum.
- Cohler, B.J., Grunebaum, H.V., Weiss, J. L., Garner, C.J., & Gallant, D.H. (1977). Disturbances of attention among schizophrenic, depressed, and well mothers and their young children. Journal of Child Psychology and Psychiatry, 18, 115-135.
- Cohn, J.F. & Tronick, E.Z. (1983). Three-month-old infants' reaction to simulated maternal depression. Child Development, 54, 178-184.
- Comas-Dias, L. (1988). Mainland Puerto Rican women: A sociocultural approach. Journal of Community Psychology, 16, 21-31.
- Committee on Multiculturalism & Mental Health & Education (1987). Task force on Chinese Canadians. Unpublished manuscript.
- Committee on Multiculturalism & Mental Health & Education (1989). Task force on Latin American Canadians. Unpublished manuscript.
- Compas, B.E. (1987). Stress and life events during childhood and adolescence. Clinical Psychology Review, 7, 275-302.



- Compas, B.E., Howell, D.C., Phares, V., Williams, R.A., & Giunta, C.T. (1989). Risk factors for emotional behavioral problems in young adolescents: A prospective analysis of adolescent and parental stress and symptoms. Journal of Consulting and Clinical Psychology, 57, 732-740.
- Conduct Problems Prevention Research Group (1992). A developmental and clinical model for the prevention of conduct disorder: The FAST Track program. Development and Psychopathology, 4, 509-527.
- Conger, R.D., Conger, K.J., Elder, G.H., Lorenz, F.O., Simons, R.L., & Whitbeck, L.B. (1993). Family economic stress and adjustment of early adolescent girls. Developmental Psychology, 29(2), 206-219.
- Conger, R.D., Patterson, G.R., & Ge, X. (1995). It takes two to replicate: A mediational model for the impact of parents' stress on adolescent adjustment. Child Development, 66, 80-97.
- Coulton, C. & Chow, J. (1992). Interaction effects in multiple regression. Journal of Social Service Research, 16, 179-199.
- Cowen, E. (1991). In pursuit of wellness. American Psychologist, 46(4), 404-408.
- Cowen, E. & Work, W.C. (1988). Resilient children, psychological wellness, and primary prevention. American Journal of Community Psychology, 16(4), 591-607.
- Coyne, J.C. & DeLongis, A.M. (1986). Going beyond social support: The role of social relationships in adaptation. Journal of Consulting and Clinical Psychology, 54, 454-460.
- Crnic, K.A. & Greenberg, M.T. (1990). Minor parenting stressors in young children. Child Development, 61, 1628-1637.
- Crnic, K.A., Greenberg, M.T., & Slough, N.M. (1986). Early stress and social support influences on mothers' and high-risk infants' functioning in late infancy. Infant Mental Health Journal, 7, 19-32.
- Crnic, K.A., Greenberg, M.T., Ragozin, A.S., Robinson, N.M., & Basham, R. (1983). Effects of stress and social support on mother and premature and full-term infants. Child Development, 54, 209-217.
- Crockenberg, S.B. (1981). Infant irritability, mother responsiveness, and social support influence on the security of mother-infant attachment. Child Development, 52, 857-865.

- Cronbach, L.J. (1987). Statistical tests for moderator variables: Flaws in analyses recently proposed. Psychological Bulletin, 102(3), 414-417.
- Cunningham, C.E., Benness, B.B., & Siegal, L.S. (1988). Family functioning, time allocation, and parental depression in the families of normal and ADD-H children. Journal of Clinical Child Psychology, 17(2), 169-177.
- D'Arcy, C. & Siddique, C.M. (1984). Social support and mental health among mothers of preschool and school age children. Social Psychiatry, 19, 155-162.
- DeLongis, A. (1985). The relationship of everyday stress to health and well-being: Inter- and intraindividual approaches. Unpublished doctoral dissertation. University of California, Berkeley.
- DeLongis, A., Coyne, J.C., Dakof, G., Folkman, S., & Lazarus, R.S. (1982). The relationship of hassles, uplifts, and major life events to health status. Health Psychology, 1, 119-136.
- DeLongis, A., Folkman, S., & Lazarus, R.S. (1988). The impact of daily stress on health and mood: Psychological and social resources as mediators. Journal of Personality and Social Psychology, 54(3), 486-495.
- Derogatis, L.R. (1983). SCL-90-R Administration, scoring and procedures manual-II. Towson, MD: Clinical Psychometric Research.
- Derogatis, L.R., Lipman, R.S., Rickels, K., Uhlenhuth, E.H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. Behavioral Science, 19, 1-15.
- Derogatis, L.R., Rickels, K., & Rock, A.F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. British Journal of Psychiatry, 128, 280-289.
- Dohrenwend, B.S., Dohrenwend, B.P., Dodson, M., & Shrout, P.E. (1984). Symptoms, hassles, social supports and life events: The problem of confounded measures. Journal of Abnormal Psychology, 93, 222-230.
- Downey, G. & Walker, E. (1992). Distinguishing family-level and child-level influences on the development of depression and aggression in children at risk. Development and Psychopathology, 4, 81-95.
- Draguns, J.D. (1980). Psychological disorders of clinical severity. In H.C. Triandis & J.D. Draguns (Eds.), Handbook of cross-cultural psychology, vol. 6 (pp. 99-174). Boston: Allyn and Bacon.

- Dumas, J.E. (1986). Indirect influence of maternal social contacts on mother-child interactions: A setting event analysis. Journal of Abnormal Child Psychology, 14, 205-216.
- Dumas, J. E. & Wahler, R.G. (1985). Indiscriminate mothering as a contextual factor in aggressive-oppositional child behavior: "Damned if you do and damned if you don't." Journal of Abnormal Child Psychology, 13(1), 1-17.
- Dunlap, W.P. & Kemery, E.R. (1987). Failure to detect moderating effects: Is multicollinearity the problem? Psychological Bulletin, 102(3), 418-420.
- Dunn, J. & Kendrick, C. (1982). Siblings: Love, envy and understanding. London: Grant McIntyre.
- Edelbrock, C., Costello, A.J., Dulcan, M.K., Conover, N.C. & Kalas, R. (1986). Parent-child agreement on child psychiatric symptoms assessed via structured interview. Journal of Child Psychology and Psychiatry, 27(2), 181-190.
- Egan, K.J., Kogan, H.N., Garber, A., & Jarrett, M. (1983). The impact of psychological distress on the control of hypertension. Journal of Human Stress, 9, 4-10.
- Egeland, B., Breitenbucher, M., & Rosenberg, D. (1980). Prospective study of the significance of life stress in the etiology of child abuse. Journal of Consulting and Clinical Psychology, 48, 195-205.
- Elder, G.H., Jr., Caspi, A., & Downey, G. (1986). Problem behavior and family relationships: Life course and interpersonal themes. In A.B. Sorensen, F.E. Weinert, & L.R. Sherrod (Eds.), Human development and the life course: Multidisciplinary perspectives (pp. 293-340). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Employment & Immigration Canada (1989). Immigration to Canada: A statistical overview.
- Employment & Immigration Canada (1991). Annual report to Parliament, Immigration Plan for 1991-1995.
- Fabrega, H. (1969). Social psychiatric aspects of acculturation and migration: A general statement. Comprehensive Psychiatry, 10, 314-329.
- Finney, J.W., Mitchell, R.E., Cronkite, R.C., & Moos, R.H. (1984). Methodological issues in estimating main and interactive effects: Examples from the copingsocial support and stress field. Journal of Health and Social Behavior, 25, 85-98.

- Flaskerud, J.H. & Soldeville, E.Q. (1986). Filipino and Vietnamese clients: Utilizing an Asian mental health center. Journal of Psychosocial Nursing, 24, 32-36.
- Fong, S.L.M. & Peskin, H. (1969). Sex-role strain and personality adjustment of China-born students in America: A pilot study. Journal of Abnormal Psychology, 74, 563-567.
- Forehand, R., Brody, G., Slotkin, J., Fauber, R., McCombs, A., & Long, N. (1988). Young adolescent and maternal depression: Assessment, interrelations, and predictors. Journal of Consulting and Clinical Psychology, 56, 422-426.
- Forehand, R., Lautenschlager, G.J., Faust, J., & Graziano, W.G. (1986). Parent perceptions and parent-child interactions in clinic-referred children: A preliminary investigation of the effects of maternal depressive moods. Behavior Research and Therapy, 24, 73-75.
- Forehand, R., Wells, K.C., McMahon, R.J., Griest, D., & Rogers, T. (1982). Maternal perception of maladjustment in clinic-referred children: An extension of earlier research. Journal of Behavioral Assessment, 4, 145-151.
- Forgatch, M.S., Patterson, G.R., & Skinner, M. (1988). A mediational model for the effect of divorce in antisocial behavior in boys. In E.M. Hetherington & J.D. Arasteh (Eds.), Impact of divorce, single parenting, and step-parenting on children (pp. 135-154). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Foster, S.L. & Martinez, C.R. (1995). Ethnicity: Conceptual and methodological issues in child clinical research. Journal of Clinical Child Psychology, 24(2), 214-226.
- Frick, P.J., Lahey, B.B., Loeber, R., Stouthamer-Loeber, M., Christ, M.G., & Hanson, K. (1992). Familial risk factors to Oppositional Defiant Disorder and Conduct Disorder: Parent psychopathology and maternal parenting. Journal of Consulting and Clinical Psychology, 60(1), 49-55.
- Frydman, M.I. (1981). Social support, life events and psychiatric symptoms: A study of direct, conditional and interaction effects. Social Psychiatry, 16, 69-78.
- Furnham, A. & Bochner, S. (1986). Culture shock: Psychological reactions to unfamiliar environments. London: Methuen.
- Gaines, R., Sandgrund, A., Green, A. H., & Power, E. (1978). Etiological factors in child maltreatment; A multivariate study of abusing, neglecting and normal mothers. Journal of Abnormal Psychology, 87, 531-540.
- Garbarino, J. (1976). A preliminary study of some ecological correlates of child abuse: The impact of socioeconomic stress on others. Child Development, 47, 178-185.

- Garmezy, N. (1983). Stressors of childhood. In N. Garmezy & M. Rutter (Eds.), Stress, coping, and development in children (pp. 43-84). New York: McGraw-Hill.
- Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J.E. Stevenson (Ed.), Recent research in developmental psychopathology. Journal of Child Psychology and Psychiatry Book Supplement, No. 4 (pp. 213-233). Oxford: Pergamon Press.
- Glover, G.R. (1989). The pattern of psychiatric admissions of Caribbean-born immigrants in London. Social Psychiatry, 24, 49-56.
- Goodstein, L.D. & Rowley, V.N. (1961) A further study of MMPI differences between parents of disturbed and non-disturbed children. Journal of Consulting Psychology, 25, 460-464.
- Goodyer, I.M., Kolvin, I., Gatzanis, S. (1987). The impact of recent undesirable life events on psychiatric disorders in childhood and adolescence. British Journal of Psychiatry, 151, 179-184.
- Gresham, F.M. & Elliott, S.N. (1990). Social Skills Rating System Manual. Circle Pines, MN: American Guidance Service.
- Griest, D.L., Forehand, R., Wells, K.C., & McMahon, R.J. (1980). An examination of differences between non-clinic and behavior problem clinic referred children. Journal of Abnormal Psychology, 88, 277-281.
- Griest, D.L., Wells, K.C., & Forehand, R. (1979). An examination of predictors of maternal perceptions of maladjustment in clinic-referred children. Journal of Abnormal Psychology, 88, 277-281.
- Grinberg, L. & Grinberg, R. (1984). A psychoanalytic study of migration: Its normal and pathological aspects. Journal of the American Psychoanalytic Association, 32(1), 13-38.
- Hammen, C., Burge, D., & Stansbury, K. (1990). Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. Developmental Psychology, 26(1), 24-30.
- Harper, J. & Williams, S. (1976). Infantile autism: The incidence of national groups in a New South Wales survey. Medical Journal of Australia, 1, 299-301.
- Harrison, A.O., Wilson, M.N., Pine, C.J., Chan, S.Q., & Buriel, R. (1990). Family ecologies of ethnic minority children. Child Development, 61, 347-364.

- Hayashi, K., Toyama, B., & Quay, H.C. (1976). A cross-cultural study concerned with differential behavioral classification. I. The Behavior Checklist. Japanese Journal of Criminal Psychology, 2, 21-28.
- Herrenkohl, E.C., Herrenkohl, R.C., Toedtke, L. & Yanushefski, A.M. (1984). Parent-child interactions in abusive and nonabusive families. Journal of the American Academy of Child Psychiatry, 23, 641-648.
- Hetherington, E.M., Cox, M., & Cox, R. (1982). Effects of divorce on parents and children. In M. Lamb (Ed.), Nontraditional families (pp.133-178). Hillsdale, NJ: Erlbaum.
- Hicks, R., Lalonde, R.N., & Pepler, D. (1993). Psychosocial considerations in the mental health of immigrant and refugee children. Canadian Journal of Community Mental Health, 12(2), 71-87.
- Hightower, A.D., Cowen, E.L., Spinell, A.P., Lotyczewski, B.S., Guare, J.C., Rohrbeck, C.A., & Brown, L.P. (1987). The Child Rating Scale: The development of a socioemotional self-rating scale for elementary school children. School Psychology Review, 16(2), 239-255.
- Hightower, A.D., Spinell, A., & Lotyczewski, B.S. (1990). Primary Mental Health Project: Child Rating Scale (CRS) Guidelines. Rochester, NY: Primary Mental Health Project, Inc.
- Hitch, P.J. & Rack, P.H. (1980). Mental illness among Polish and Russian refugees in Bradford. British Journal of Psychiatry, 137, 206-211,
- Holahan, C.J. & Moos, R.H. (1987). Risk, resistance and psychological distress: A longitudinal analysis with adults and children. Journal of Abnormal Psychology, 96, 3-13.
- Hollingshead, A.B. (1975). Four factor index of social status. Unpublished manuscript, Yale University, Department of Sociology, Connecticut.
- Hong, G.K. (1989). Application of cultural and environmental issues in family therapy with immigrant Chinese Americans. Journal of Strategic and Systemic Therapies, 8, 14-21.
- Hops, H., Biglan, A., Sherman, L., Arthur, J., Friedman, L., & Osteen, V. (1987). Home observations of family interactions of depressed women. Journal of Consulting and Clinical Psychology, 55 (3), 341-346.

- Hops, H., Sherman, L., & Biglan, A. (1990). Maternal depression, marital discord, and children's behavior: A developmental perspective. In G.R. Patterson (Ed.), Depression and aggression in family interaction (pp. 185-208). Hillsdale, NJ: Erlbaum.
- House, J.S. (1981). Work stress and social support. Reading, MA: Addison-Wesley.
- House, J.S., Landis, K.R., & Umberson, D. (1988). Social relationships and health. Science, 241, 540-545.
- House, J.S., Robbins, C., & Metzner, H.L. (1982). The association of social relationships and activities with mortality: Prospective evidence from the Tecumseh Community Health Study. American Journal of Epidemiology, 116, 123-140.
- Hurh, W.M. & Kim, K.C. (1990). Correlates of Korean immigrants' mental health. Journal of Nervous and Mental Disease, 178, 703-711.
- Ishiyama, F.I. (1989). Understanding foreign adolescents' difficulties in cross-cultural adjustment: A self-validation model. Canadian Journal of School Psychology, 5, 41-56.
- Jaccard, J., Wan, C.K., & Turrisi, R. (1990). The detection and interpretation of interaction effects between continuous variables in multiple regression. Multivariate Behavioral Research, 25(4), 467-478.
- Jacobson, S.W. & Frye, K.F. (1991). Effect of maternal social support on attachment: Experimental evidence. Child Development, 62(3), 572-582.
- Jay, S.M., Ozolins, M., Elliott, C.H., & Caldwell, S. (1983). Assessment of children's distress during painful medical procedures. Health Psychology, 2, 133-147.
- Jensen, P.S., Xenakis, S.N., Davis, H., & DeGroot, J. (1988). Child psychopathology rating scales and interrater agreement: II. Child and family characteristics. Journal of the American Academy of Child Psychiatry, 27, 451-461.
- Jessor, R. (June, 1979). The perceived environment and the study of adolescent problem behavior. Paper presented at the Symposium on the Situation in Psychological Theory and Research at LOVIK, Stockholm, Sweden.
- Johnson, J.H. (1986). Life events as stressors in childhood and adolescence. Beverly Hills, CA: Sage.
- Johnston, C. & Short, K.H. (1993). Depressive symptoms and perceptions of child behavior. Journal of Social and Clinical Psychology, 12, 164-181.

- Justice, B. & Justice, R. (1976). The abusing family. New York: Human Sciences Press.
- Kallarackal, A.M. & Herbert, M. (1976). The happiness of Indian immigrant children. New Society, 26, 422-424.
- Kanner, A.D., Coyne, J.C., Schaefer, C., & Lazarus, R.S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. Journal of Behavioral Medicine, 4, 1-39.
- Kaslow, N.J., Rehm, L.P., & Siegel, A.W. (1984). Social-cognitive and cognitive correlates of depression in children. Journal of Abnormal Child Psychology, 12, 605-620.
- Kazdin, A.E. (1992). Child and adolescent dysfunction and paths toward maladjustment: Targets for intervention. Clinical Psychology Review, 12, 795-817.
- Kazdin, A.E. (1995). Scope of child and adolescent psychotherapy research: Limited sampling of dysfunctions, treatments, and client characteristics. Journal of Clinical Child Psychology, 24(2), 125-140.
- Kessler, R.C. (1982). Life events, social support, and mental health. In W.R. Gove (Ed.), Deviance and mental illness (pp.247-271). Beverly Hills, CA: Sage.
- Kessler, R.C. & McLeod, J. (1984). Social support and mental health in community samples. In S. Cohen & S.L. Syme (Eds.), Social support and health (pp. 3-22). New York: Academic Press.
- Kessler, R.C. & Neighbours, H. (1986). A new perspective on the relationships among race, social class, and psychological distress. Journal of Health and Social Behavior, 27, 107-115.
- Kim, J.H., Kim K., & Won, H.T. (1983). Symptom Checklist-90-Revision (SCL-90-R) in psychiatric outpatients. Mental Health Research, 150-168.
- Kleinman, A. (1987). Anthropology and psychiatry: The role of culture in cross-cultural research on illness. British Journal of Psychiatry, 151, 447-44.
- Kleinman, A. & Kleinman, J. (1985). Somatization: The interconnections in Chinese society among culture, depressive experiences, and the meanings of pain. In A. Kleinman & B. Good (Eds.), Culture and depression: Studies in the anthropology and cross-cultural psychiatry of affect and disorder (pp. 429-490). Berkeley, CA: University of California Press, Ltd.
- Koeske, G.F. (1992). Moderator variables in social work research. Journal of Social Service Research, 16, 159-178.



- Krech, K.H. & Johnston, C. (1992). The relationship of depressed mood and life stress to maternal perceptions of child behavior. Journal of Clinical Child Psychology, 21(2), 115-122.
- Krupinski, J. (1967). Sociological aspects of mental ill-health in migrants. Social Science and Medicine, 1, 267-281.
- Kuo, W.H. & Tsai, Y.M. (1986). Social networking, hardiness and immigrant's mental health. Journal of Health and Social Behavior, 27, 133-149.
- Lai, M.C. & Yue, K.M.K. (1990). The Chinese. In N. Waxler-Morrison, J.M. Anderson, & E. Richardson (Eds.), Cross-cultural caring: A handbook for health professionals in Western Canada (pp.73-89). Vancouver: University of British Columbia Press.
- Lambert, M.C., Weisz, J.R., & Thesiger, C. (1989). Principal components analyses of behavior problems in Jamaican clinic-referred children: Teacher reports for ages 6-17. Journal of Abnormal Child Psychology, 17(5), 553-562.
- Lazarus, R.S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures. American Psychologist, 40(7), 770-779.
- Lazarus, R.S. & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.
- Lee, E. (1982). A social systems approach to assessment and treatment for Chinese American families. In M. McGoldrick, J.K. Pearce, & J. Giordano (Eds.), Ethnicity and Family Therapy (pp. 527-551). New York: Guilford Press.
- Lepore, S. J., Palsane, M.N., & Evans, G.W. (1991). Daily hassles and chronic strains: A hierarchy of stressors? Social Science and Medicine, 33(9), 1029-1036.
- Lobitz, G.K. & Johnson, S.M. (1975). Normal versus deviant children: A multimethod comparison. Journal of Abnormal Child Psychology, 3(4), 353-375.
- Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. Clinical Psychology Review, 10, 1-41.
- Loeber, R., Green, S.M., Lahey, B.B., & Stouthamer-Loeber, M. (1991). Differences and similarities between children, mothers, and teachers as informants on disruptive behavior disorders. Journal of Abnormal Child Psychology, 19, 75-95.
- Longfellow, C., Zelkowitz, P., & Saunders, E. (1982). The quality of mother-child relationships. In D. Belle (Ed.), Lives in stress: Women and depression (pp.163-176). Beverly Hills, CA: Sage.

- Lysgaard, S. (1955). Adjustment in a foreign society: Norwegian Fulbright grantees visiting the United States. International Social Science Bulletin, 7, 45-51.
- Marsella, A.J. (1980). Depressive experience and disorder across cultures. In H.C. Triandis & J.D. Draguns (Eds.), Handbook of cross-cultural psychology, vol. 6 (pp. 237-290). Boston: Allyn and Bacon.
- Masten, A.S. & Garmezy, N. (1985). Risk, vulnerability, and protective factors in developmental psychopathology. In B. B. Lahey & A.E. Kazdin (Eds.), Advances in clinical child psychology, vol. 8 (pp. 1-52). New York: Plenum Press.
- Masten, A.S., Morison, P., Pellegrini, D., & Tellegen, A. (1992). Competence under stress: Risk and protective factors. In J. Rolf, A.S. Masten, D. Cicchetti, K.H. Nuechterlein, & S. Weintraub (Eds.), Risk and protective factors in the development of psychopathology (pp. 236-256). Cambridge: Cambridge University Press.
- McFarlane, A.C., Policansky, S.K., & Irwin, C. (1987). A longitudinal study of the psychological morbidity in children due to a natural disaster. Psychological Medicine, 17, 727-738.
- Mednick, S.A. & Schulsinger, F. (1968). Some premorbid characteristics related to breakdown in children with schizophrenic mothers. In D. Rosenthal & S.S. Kety (Eds.), The transmission of schizophrenia (pp. 267-291). Oxford: Pergamon Press.
- Middlebrook, J. & Forehand, R. (1985). Maternal perceptions of deviance in child behavior as a function of stress behavior and clinic vs. non-clinic status of the child: An analogue study. Behavior Therapy, 16, 494-502.
- Minde, K., & Minde, R. (1976). Children of immigrants: The adjustment of Ugandan Asian primary-school children in Canada. Canadian Psychiatric Association Journal, 21, 371-381.
- Mindel, C.H. & Habenstein, R.W. (1981). Family lifestyles of America's ethnic minorities: An introduction. In C.H. Mindel & R.W. Habenstein (Eds.), Ethnic families in America: Patterns and variations (pp. 1-13). New York: Elsevier, North Holland.
- Monroe, S.M. (1983). Major and minor life events as predictors of psychological distress: Further issues and findings. Journal of Behavioral Medicine, 6, 189-205.
- Monroe-Blum, H., Boyle, M.H., Offord, D.R., & Kates, N. (1989). Immigrant children: Psychiatric disorder, school performance and service utilization. American Journal of Orthopsychiatry, 59, 510-519.

- Mullins, L.L., Siegel, L.J., & Hodges, K. (1985). Cognitive problem solving and life event correlates of depressive symptoms in children. Journal of Abnormal Child Psychology, 13, 305-314.
- Mumford, D.B. (1989). Somatic sensations and psychological distress among students in Britain and Pakistan. Social psychiatry, 24, 321-326.
- Murphy, H.B.M. (1973). Uprooting and after. New York: Springer-Verlag.
- Myers, H.F., Taylor, S., Alvy, K.T., Arrington, A., & Richardson, M.A. (1992). Parental and family predictors of behavior problems in inner-city Black children. American Journal of Community Psychology, 20(5), 557-576.
- Myers, J.K. & Weissman, M.M. (1980). Use of a self-report symptom scale to detect depression in a community sample. American Journal of Psychiatry, 137, 1081-1084.
- Nakagawa, M., Teti, D.M., Lamb, M.E., & Shigemura, T. (April, 1991). Japanese mothers and children in the U.S.: Stress, support, parenting, and attachment. Paper presented at the Biennial Conference of the Society for Research in Child Development, Seattle, WA.
- Nann, (1982). Settlement programs for immigrant women and families. In R.C. Nann (Ed.). Uprooting and Surviving. Dordrecht: Holland: D. Reidel Publishing Company.
- Ng, K.K.Y. (1993). Volunteer work and settlement: A study of Chinese immigrant women. Canadian Journal of Community Mental Health, 12(2), 31-45.
- Nicassio, P.M. & Pate, J.K. (1984). An analysis of problems of resettlement of the Indochinese refugees in the United States. Social Psychiatry, 19, 135-141.
- Noh, S., Avison, W.R., & Kaspar, V. (1992). Depressive symptoms among Korean immigrants: Assessment of a translation of the Center for Epidemiologic Studies-Depression scale. Psychological Assessment, 4(1), 84-91.
- Oberg, K. (1960). Culture shock: Adjustment to new cultural environments. Practical Anthropology, 7, 177-182.
- Offord, D., Rae-Grant, T.L., Links, G.S., Cadman, R.W., Byles, S.R., Crawford, D.M., Monroe-Blum, C.R., Byrne, E.D., Thomas, W.S., Woodward, T.R., Boyle, I.L., & Szatmari, P. (1987). Ontario Child Health Study: II. 6-month prevalence of disorder and rates of service utilization. Archives of General Psychiatry, 44, 832-836.

- Padilla, A.M., Cervantes, R.C., Maldonado, M. & Garcia, R.E. (1988). Coping responses to psychosocial stressors among Mexican and Central American immigrants. Journal of Community Psychology, 16, 418-427.
- Parke, R.D. & Bhavnagri, N.P. (1988). Parents as managers of children's peer relationships. In D. Belle (Ed.), Children's social networks and social supports (pp. 241-259). New York: Wiley.
- Parke, R.D., MacDonald, K.B., Beitel, A., & Bhavnagri, N. P.(1988). The role of the family in the development of peer relationships. In R. Peters & R.J. McMahon (Eds.), Social learning systems: Approaches to marriage and the family (pp. 17-44). New York: Brunner-Mazel.
- Parker, J.G. & Asher, S.R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102 (3), 357-389.
- Patterson, G.R. (1982). Coercive Family Process. Eugene, Oregon: Castalia.
- Patterson, G.R. (1983). Stress: A change agent for family process. In N. Garmezy and M. Rutter (Eds.), Stress, coping, and development in children (pp. 235-264). New York: McGraw-Hill.
- Patterson, G.R. (1986). Performance models for antisocial boys. American Psychologist, 41(4), 432-444.
- Patterson, G.R., & Capaldi, D.M. (1992). A mediational model for boys' depressed mood. In J.Rolf, A.S. Masten, D. Cicchetti, K.H. Nuechterlein, & S. Weintraub (Eds.), Risk and protective factors in the development of psychopathology (pp. 141-163). Cambridge: Cambridge University Press.
- Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R. Shaver, & L.S. Wrightman (Eds.), Measures of Personality and Social Psychological Attitudes, Vol. 1. (pp. 17-58). San Diego, CA: Academic Press.
- Piacentini, J.C., Cohen, P. & Cohen, J. (1992). Combining discrepant diagnostic information from multiple sources: Are complex algorithms better than simple ones? Journal of Abnormal Child Psychology, 20(1), 65-82.
- Pianta, R.C., Egeland, B., & Sroufe, L.A. (1992). Maternal stress and children's development: Prediction of school outcomes and identification of protective factors. In J. Rolf, A.S. Masten, D. Cicchetti, K.H. Nuechterlein, & S. Weintraub (Eds.), Risk and protective factors in the development of psychopathology (pp. 215-235). Cambridge: Cambridge University Press.

- Puig-Antich, J., Lukens, E., Davies, M., Goetz, D., Brennan-Quattrock, J., & Todak, G. (1985). Psychosocial functioning in prepubertal major depressive disorders: Interpersonal relationships during the depressive episode. Archives of General Psychiatry, 42, 500-507.
- Quay, H.C. & Parskeuopoulos, I.N. (1972, August). Dimensions of problem behavior in elementary school children in Greece, Iran and Finland. Paper presented at the XXth International Congress of Psychology, Tokyo, Japan.
- Rabkin, J.G. & Struening, E.L. (1976). Life events, stress, and illness. Science, 194, 1013-1020.
- Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.
- Rae Grant, N. & Crill Russell, C. (1989). Better Beginnings, Better Futures: An integrated model of primary prevention of emotional and behavioral problems. Kingston: Queen's Printer for Ontario.
- Raphael, E.I. (1988). Grandparents: A study of their role in Hispanic families. Physical and Occupational Therapy in Geriatrics, 6, 31-62.
- Reich, W. & Earls, F. (1987). Rules for making psychiatric diagnoses in children on the basis of multiple sources of information: Preliminary strategies. Journal of Abnormal Child Psychology, 15, 601-616.
- Reid, W.J. & Crisafulli, A. (1990). Marital discord and child behavior problems: A meta-analysis. Journal of Abnormal Child Psychology, 18, 105-117.
- Rickard, K., Forehand, R., Wells, K., Griest, D., & McMahon, R. (1981). Factors in the referral of children for behavioral treatment: A comparison of mothers of clinic-referred deviant, clinic-referred non-deviant and nonclinic children. Behavior Research & Therapy, 19, 201-205.
- Richters, J.E. (1992). Depressed mothers as informants about their children: A critical review of the evidence for distortion. Psychological Bulletin, 112, 485-499.
- Roberts, R.E. & Vernon, S.W. (1983). The Center for Epidemiologic Studies-Depression scale: Its use in a community sample. American Journal of Psychiatry, 140, 41-46.
- Roberts, R.E., Vernon, S.W., & Rhoades, H.M. (1989). Effects of language and ethnic status on reliability and validity of the Center for Epidemiologic Studies-Depression scale with psychiatric patients. Journal of Nervous and Mental Disease, 177, 581-592.

- Roff, M., Sells, S.B., & Golden, M.M. (1972). Social adjustment and personality development in children. Minneapolis: University of Minnesota Press.
- Roff, J.D. & Wirt, D. (1984). Childhood aggression and social adjustment as antecedents of delinquency. Journal of Abnormal Child Psychology, 12, 111-126.
- Rogler, L.H. (1994). International migrations: A framework for directing research. American Psychologist, 49(8), 701-708.
- Rogosch, F.A., Mowbray, C.T., & Bogat, G.A. (1992). Determinants of parenting attitudes in mothers with severe psychopathology. Development and Psychopathology, 4, 469-487.
- Rumbaut, R.D. (1985). Mental health and the refugee experience: A comparative study of Southeast Asian refugees. In T. Owan, B. Bliatout and K.M. Lin (Eds.), Southeast Asian mental health: Treatment, prevention, services, and research (DHHS Publication ADM-1399) (pp. 433-486). Rockville, MD: National Institute of Mental Health.
- Rutter, M. (1966). Children of sick parents: An environmental and psychiatric study. Institute of Psychiatry Maudsley Monographs No. 16. London: Oxford University Press.
- Rutter, M. (1970). Sex differences in children's responses to family stress. In E.J. Anthony & C. Koupernik (Eds.), The child in his family (pp. 165-196). New York: Wiley.
- Rutter, M. (1992). Psychosocial resilience and protective mechanisms. In J. Rolf, A.S. Masten, D. Cicchetti, K.H. Nuechterlein, & S. Weintraub (Eds.), Risk and protective factors in the development of psychopathology (pp. 215-235). Cambridge: Cambridge University Press.
- Rutter, M. & Quinton, D. (1984). Parental psychiatric disorder: Effects on children. Psychological Medicine, 14, 853-880.
- Rutter, M., Yule, M., Berger, M., Yule, B., Morton, J., & Bagley, C. (1974). Children of West Indian immigrants: 1. Rates of behavioral deviance and of psychiatric disorder. Journal of Child Psychology and Psychiatry, 15, 241-262.
- Sameroff, A.J. (1987). The social context of development. In N. Eisenberg (Ed.), Contemporary topics in developmental psychology (pp. 273-291). New York: Wiley.
- Sameroff, A.J. & Seifer, R. (1983). Familial risk and child competence. Child Development, 54, 1254-1268.

- Sarason, I.G., Levine, H.M., Basham, R.B., & Sarason, B.R. (1983). Assessing social support: The Social Support Questionnaire. Journal of Personality and Social Psychology, 44, 127-139.
- Saunders, D.R. (1956). Moderator variables in prediction. Educational and Psychological Measurement, 16, 209-222.
- Schaughency, E.A. & Lahey, B.B. (1985). Mothers' and fathers' perceptions of child deviance: Roles of child behavior, parental depression, and marital satisfaction. Journal of Consulting and Clinical Psychology, 53, 718-723.
- Scheier, M.F., & Carver, C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. Health Psychology, 4, 219-247.
- Siegel, J.M. & Brown, J.D. (1988). A prospective study of stressful circumstances, illness symptoms, and depressed mood among adolescents. Developmental Psychology, 24, 715-721.
- Selman, R.L., Hickey Shultz, L., Nakkula, M., Barr, D., Watts, C., & Richmond, J.B. (1992). Friendship and fighting: A developmental approach to the study of risk and prevention of violence. Development and Psychopathology, 4, 529-558.
- Shure, M. & Spivack, G. (1982). Interpersonal problem-solving in young children: A cognitive approach to prevention. American Journal of Community Psychology, 10, 341-357.
- Simoës, M. & Binder, J. (1980). A socio-psychiatric field study among Portuguese emigrants in Switzerland. Social Psychiatry, 15, 1-7.
- Skinner, E. (1985). Determinants of mother sensitive and contingent-responsive behavior: The role of child-rearing beliefs and SES. In I.E. Sigel (Ed.), Parental belief systems: The psychological consequences for children. New Jersey: Lawrence Erlbaum Associates.
- Sokoloff, B., Carlin, J., & Pham, H. (1984). Five-year follow-up of Vietnamese refugee children in the United States. Clinical Pediatrics, 23(10), 565-570.
- Solis, M.L. & Abidin, R.R. (1991). The Spanish version Parenting Stress Index: A psychometric study. Journal of Clinical Child Psychology, 20(4), 372-378.
- Stark, K.D., Humphrey, L.L., Crook, K., & Lewis, K. (1990). Perceived family environments of depressed and anxious children: Child's and maternal figure's perspective. Journal of Abnormal Child Psychology, 18(5), 527-547.

- Statistical Package for the Social Sciences, Inc. (1992). SPSS for Windows: Base system user's guide, release 6.0. Chicago, Illinois: SPSS, Inc.
- Steinhausen, H.C. (1985). Psychiatric disorders in children and family dysfunction. Social Psychiatry, 20, 11-16.
- Sterling, S., Cowen, E.L., Weissberg, R.P., Lotyczewski, B.C., & Boike, M. (1985). Recent stressful life events and young children's school adjustment. American Journal of Community Psychology, 13, 87-99.
- Straus, M.A. (1980). Stress and child abuse. In C.H. Kempe & R.E. Helfer (Eds.), The battered child, 3rd ed. (pp. 86-103). Chicago: University of Chicago Press.
- Sue, D. & Sue, S. (1987). Cultural factors in the clinical assessment of Asian Americans. Journal of Consulting and Clinical Psychology, 55(4), 479-487.
- Sue, D.W. & Sue, D. (1990). Counseling the culturally different: Theory and practice, 2nd edition. New York: John Wiley & Sons.
- Sue, S. & Chin, R. (1983). The mental health of Chinese-American children: Stressors and resources. In G.J. Powell (Ed.), The psychosocial development of minority group children (pp. 385-397). New York: Brunner / Mazel.
- Sue, S. & Morishima, J.K. (1982). The mental health of Asian Americans. San Francisco: Jossey-Bass.
- Suen, P. & Ng, S. (1987). Background paper on aspects of Chinese-Canadian culture. Burnaby, B.C.: Burnaby Multicultural Council.
- Taft, R. (1977). A comparative study of the initial adjustment of immigrant schoolchildren in Australia. International Migration Review, 13(1), 71-81.
- Tarullo, L.B., Richardson, D.T., Radke-Yarrow, M., & Martinez, P.E. (1995). Multiple sources in child diagnosis: Parent-child concordance in affectively ill and well families. Journal of Clinical Child Psychology, 24(2), 173-183.
- Terris, M. (1973). Approaches to the epidemiology of health. American Journal of Public Health, 65, 1037-1045.
- Touliatos, J. & Lindholm, B.W. (1980). Behavioral disturbance in children of native-born and immigrant parents. Journal of Community Psychology, 8, 28-33.
- Trovato, F. (1986). A time series analysis of international immigration and suicide mortality in Canada. International Journal of Social Psychiatry, 32(2), 38-46.



- Tseng, W.S. & Hsu, J. (1980). Minor psychological disturbances of everyday life. In H.C. Triandis & J.D. Draguns (Eds.), Handbook of cross-cultural psychology, vol. 6 (pp. 54-98). Boston: Allyn and Bacon.
- Tyhurst, L. (1982). Coping with refugees. A Canadian experience: 1948-1981. International Journal of Social Psychiatry, 28(2), 105-109.
- Vancouver School Board (1990). Oakridge Reception and Orientation Centre registrations: 1989 July to 1990 June. Unpublished raw data.
- Vancouver School Board (1991). Oakridge Reception and Orientation Centre registrations: 1990 July to 1991 June. Unpublished raw data.
- Vancouver School Board (1992). Oakridge Reception and Orientation Centre registrations: 1991 July to 1992 June. Unpublished raw data.
- Varni, J.W., Wilcox, K.T., & Hanson, V. (1988). Mediating effects of family social support on child psychological adjustment in juvenile rheumatoid arthritis. Health Psychology, 7(5), 421-431.
- Vega, W.A., Kolody, B., & Valle, J.R. (1987). Migration and mental health: An empirical test of depression risk factors among immigrant Mexican women. International Migration Review, 21(3), 512-530.
- Wagner, B.M., Compas, B.E., & Howell, D.C. (1988). Daily and major life events: A test of an integrative model of psychosocial stress. American Journal of Community Psychology, 16, 189-205.
- Wahler, R.G. (1980). The insular mother: Her problems in parent-child treatment. Journal of Applied Behavior Analysis, 13, 207-219.
- Wallerstein, J.S., & Kelly, J. (1980). Surviving the breakup: How children and parents cope with divorce. New York: Basic Books.
- Walsh, A. & Walsh, P.A. (1987). Social support, assimilation, and biological effective blood pressure levels. International Migration Review, 21(3), 577-591.
- Waters, E. & Sroufe, L.A. (1983). A developmental perspective on competence. Developmental Review, 1, 59-79.
- Watt, N.F., Anthony, E.J., Wynne, L.C., & Rolf, J.E. (Eds.). (1984). Children at risk for schizophrenia. New York: Cambridge University Press.
- Way, R.T. (1985). Burmese culture, personality, and mental health. Australian and New Zealand Journal of Psychiatry, 19(3), 275-282.

- Webster-Stratton, C. (1988). Mothers' and fathers' perceptions of child deviance: Roles of parent and child behaviors and parent adjustment. Journal of Consulting and Clinical Psychology, 56(6), 909-915.
- Webster-Stratton, C. (1990). Stress: A potential disrupter of parent perceptions and family interactions. Journal of Clinical Child Psychology, 19(4), 302-312.
- Webster-Stratton, C. & Hammond, M. (1988). Maternal depression and its relationship to life stress, perceptions of child behavior problems, parenting behaviors and child conduct problems. Journal of Abnormal Child Psychology, 16, 299-315.
- Weinraub, M. & Ansul, S. (1984, April). Children's responses to strangers: Effects of family status, stress and mother-child interaction. Paper presented at the Fourth Biennial conference on Infant Studies, New York.
- Weinraub, M. & Wolf, B. M. (1983). Effects of stress and social supports on mother-child interactions in single and two-parent families. Child Development, 54, 1297-1311.
- Weissberg, R.P., Caplan, M., & Harwood, R.L. (1991). Promoting competent young people in competence-enhancing environments: A systems-based perspective on primary prevention. Journal of Consulting and Clinical Psychology, 59(6), 830-841.
- Weissman, M.M. & Paykel, E.S. (1974). The depressed woman. Chicago: University of Chicago Press.
- Weissman, M.M., Paykel, E.S., & Klerman, G.L. (1972). The depressed woman as mother. Social Psychiatry, 7, 98-108.
- Weisz, J.R., Suwanlert, S., Chaiyasit, W., & Walter, B.R. (1987). Over- and under-controlled referral problems among Thai and American children and adolescents: The wat and wai of cultural differences. Journal of Consulting and Clinical Psychology, 55, 719-726.
- Werner, E.E. & Smith, R.S. (1982). Vulnerable but invincible: A longitudinal study of resilient children and youth. New York: McGraw-Hill.
- Westermeyer, J. (1988). A matched pairs study of depression among Hmong refugees with particular reference to predisposing factors and treatment outcome. Social Psychiatry, 23, 64-87.
- Wethington, E. & Kessler, R.C. (1986). Perceived support, received support, and adjustment of stressful life events. Journal of Health and Social Behavior, 27, 78-89.

- Wheaton, B. (1985). Models for the stress-buffering functions of coping resources. Journal of Health and Social Behavior, 26, 352-364.
- Williams, P., Tarnopolsky, A., & Hand, D. (1980). Case definition and case identification in psychiatric epidemiology: Review and assessment. Psychological Medicine, 10, 101-114.
- Wilson, M.N. (1986). The black extended family: An analytical consideration. Developmental Psychology, 2, 246-258.
- Wilson, W.J. (1987). The truly disadvantaged: The inner city, the underclass, and public policy. Chicago: University of Chicago Press.
- Wing, J.K., Bebbington, P., & Robins, L. N. (Eds.) (1981). What is a case? London: Grant McIntyre.
- Wolfe, D.A., Jaffe, P., Wilson, S.K., & Zak, L. (1985). Children of battered women: The relation of child behavior to family violence and maternal stress. Journal of Consulting and Clinical Psychology, 53(5), 657-665.
- Wyman, P.A., Cowen, E.L., Work, W.C., & Parker, G.R. (1991). Developmental and family milieu correlates of resilience in urban children who have experienced major life stress. American Journal of Community Psychology, 19(3), 405-426.
- Yamamoto, J. & Acosta, F.X. (1982). Treatment of Asian Americans and Hispanic Americans: Similarities and differences. American Academy of Psychoanalysis, 10, 585-607.
- Yao, K., Solanto, M.V., & Wender, E.H. (1988). Prevalence of hyperactivity among newly immigrated Chinese-American children. Developmental and Behavioral Pediatrics, 9, 367-373.
- Yule, W. (1992). Resilience and vulnerability in child survivors of disasters. In B. Tizard & V. Varma (Eds.), Vulnerability and resilience in human development. London: Jessica Kingsley Publishers.
- Yule, W., & Williams, R. (1990). Post-traumatic stress reactions in children. Journal of Traumatic Stress, 3(2), 279-295.
- Zahner, G.E.P., Pawelkiewicz, W., DeFrancesco, J.J., & Adnopolz, T. (1992). Children's mental health service needs and utilization patterns in an urban community: An epidemiological assessment. Journal of the American Academy of Child and Adolescent Psychiatry, 31, 951-960.

- Zekoski, E.M., O'Hara, M.W., & Wills, K.E. (1987). The effects of maternal mood on mother-infant interaction. Journal of Abnormal Child Psychology, 15(3), 361-378.
- Zhang, D. (1994). Depression and culture: A Chinese perspective. Manuscript submitted for publication.
- Zill, N. & Schoenborn, C.A. (1990, November). Developmental, learning, and emotional problems: Health of our nation's children, United States 1988. Advance Data: National Center for Health Statistics, Number 190.
- Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment, 52(1), 30-41.
- Zussman, J.V. (1980). Situational determinants of parental behavior: Effects of competing cognitive activity. Child Development, 51, 792-800.

## Appendix A

### Family Information Questionnaire

Today's date (day/month/year): \_\_\_\_\_

Your date of birth (day/month/year): \_\_\_\_\_

Date of your arrival in Canada (month/year): \_\_\_\_\_

Your highest (completed) education level: \_\_\_\_\_

(e.g., grade 9, B.A., one year of nursing college, etc.)

Spouse's highest (completed) education level: \_\_\_\_\_

Your present occupation (be specific): \_\_\_\_\_

Spouse's present occupation (be specific): \_\_\_\_\_

Your occupation in home country (be specific): \_\_\_\_\_

Spouse's occupation in home country (be specific): \_\_\_\_\_

Generally, has your family income increased or decreased since coming to Canada? (check one)\*\*

increased or  
no change\_\_

a little  
decrease\_\_

a moderate  
decrease\_\_

a large  
decrease\_\_

Age (s), and gender (s) of child (ren) (if you have more than one child, place a \* beside the child that you have been asked to think about for this study):

\_\_\_\_\_  
\_\_\_\_\_

When did this child (\*) arrive in Canada (month/year)? \_\_\_\_\_

How many months in a year do you and this child live in B.C.? \_\_\_\_\_

How many months in a year does your spouse live in B.C.? \_\_\_\_\_

Does anyone else live in your home with you (e.g., your mother, your spouse's parents, a female friend, a housekeeper)? Please list these members of your household.

\_\_\_\_\_

How many members of your extended family (e.g., parents, sisters, aunts, in-laws) live in the Lower Mainland? \_\_\_\_\_

Do you plan to return to Hong Kong to live? \_\_\_\_\_

If yes, approximately when do you plan to go back? \_\_\_\_\_

[\*\*Item contributed to the total score of the Mother Immigration Stress Scale.]

## Appendix B

### Immigration Stress Scale

1. How much stress did you experience in the year before you came to Canada?

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

2. How much stress did you experience during the move itself?

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

3. How much stress have you experienced since settling in Canada?

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

4. How much stress did your child experience in the year before coming to Canada?\*

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

5. How much stress did your child experience during the move itself?\*

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

6. How much stress has your child experienced since settling in Canada?\*

no stress\_\_\_ a little\_\_\_ quite a bit\_\_\_ extreme stress\_\_\_

7. Please rate your English language fluency: (check one)

SPOKEN: poor\_\_\_ fair\_\_\_ good\_\_\_ fluent\_\_\_

WRITTEN: poor\_\_\_ fair\_\_\_ good\_\_\_ fluent\_\_\_

8. Please rate your child's English language fluency: (check one)\*

SPOKEN: poor\_\_\_ fair\_\_\_ good\_\_\_ fluent\_\_\_

WRITTEN: poor\_\_\_ fair\_\_\_ good\_\_\_ fluent\_\_\_

9. How bothered do you think that your child is by things like racial discrimination and homesickness (for people and things back in Hong Kong)?\*

not at all\_\_\_ a little\_\_\_ quite a bit\_\_\_ extremely\_\_\_

## Appendix B, continued

This week, how much of a hassle was (were):

54. Language issues?\*\*

none/not applicable\_\_      somewhat\_\_      quite a bit\_\_      extremely\_\_

55. Thinking about people/things in home country?\*\*

none/not applicable\_\_      somewhat\_\_      quite a bit\_\_      extremely\_\_

56. Availability of cultural food preferences?\*\*

none/not applicable\_\_      somewhat\_\_      quite a bit\_\_      extremely\_\_

57. Canadian ways of doing things?\*\*

none/not applicable\_\_      somewhat\_\_      quite a bit\_\_      extremely\_\_

58. Racial discrimination?\*\*

none/not applicable\_\_      somewhat\_\_      quite a bit\_\_      extremely\_\_

[\*These items together comprised the Child Immigration Stress Scale.]

[\*\*These items appeared on the Hassles Scale but contributed to the total score on the Mother Immigration Stress Scale.]

## Appendix C

### Parent Support Scale

Sometimes others can be helpful to us as parents by offering to babysit, giving good discipline advice, and so on. At other times, people actually interfere with the way we want to parent our children.

1. Do any of your extended family members (living here or in Hong Kong) give you parenting support (e.g., babysitting, discipline advice)?

never\_\_ rarely\_\_ sometimes\_\_ quite a bit\_\_ regularly\_\_

2. How helpful is the parenting "support" offered by extended family members? [if never give support or no extended family, check here\_\_]

not at all helpful\_\_ rarely helpful\_\_ sometimes helpful\_\_ usually helpful\_\_ extremely helpful\_\_

3. Do any of your friends help you with parenting?

never\_\_ rarely\_\_ sometimes\_\_ quite a bit\_\_ regularly\_\_

4. How helpful is the parenting "support" offered by friends? [if never get help or no friends, check here\_\_]

not at all helpful\_\_ rarely helpful\_\_ sometimes helpful\_\_ usually helpful\_\_ extremely helpful\_\_

5. Does your husband help you with parenting?

never\_\_ rarely\_\_ sometimes\_\_ quite a bit\_\_ regularly\_\_

6. How helpful is the parenting "support" offered by your husband? [if never get help or no husband, check here\_\_]

not at all helpful\_\_ rarely helpful\_\_ sometimes helpful\_\_ usually helpful\_\_ extremely helpful\_\_

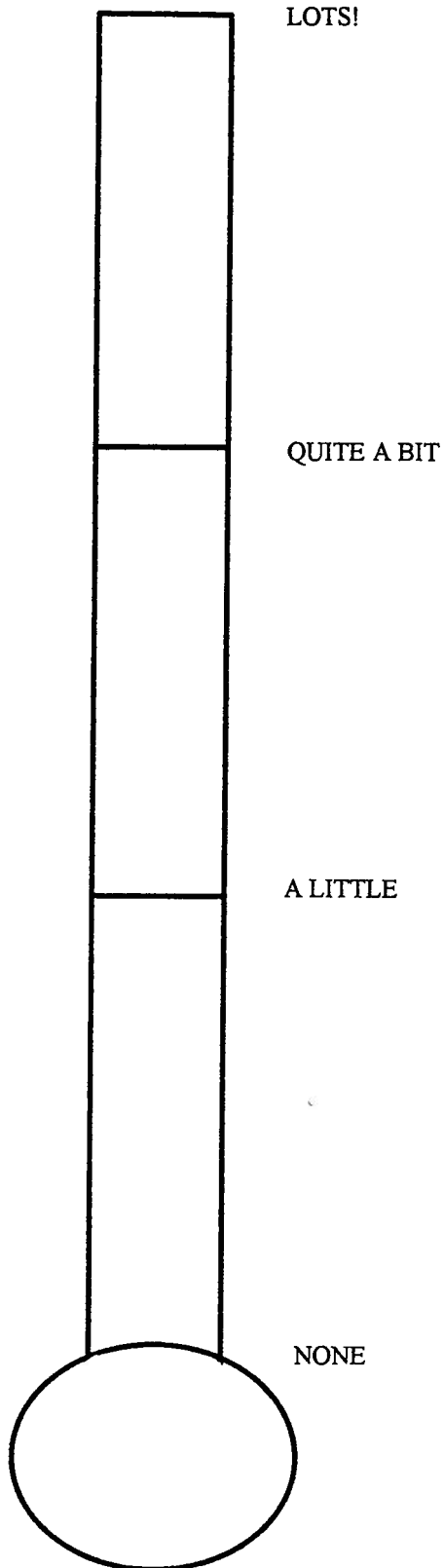


Stress Thermometer

WHEN YOU MOVED TO  
CANADA, HOW MUCH  
STRESS DID YOU FEEL?  
(HOW HARD WAS IT?)

DRAW A LINE TO SHOW  
HOW MUCH STRESS  
YOU FELT.

\*Drawing not exactly to scale.



## Appendix E

### Scale of Children's Stress

1. Are you happier in Vancouver or Hong Kong?

Vancouver \_\_\_\_

Hong Kong \_\_\_\_

Both the same \_\_\_\_

2. Do you miss your friends and family and things back in Hong Kong?

no \_\_\_\_

yes \_\_\_\_ a little \_\_\_\_

a lot \_\_\_\_

3. How would you rate your English?

poor \_\_\_\_

fair \_\_\_\_

good \_\_\_\_

excellent \_\_\_\_

4. Do you feel that you are not included in things because you are Chinese?

no \_\_\_\_

yes \_\_\_\_ a little \_\_\_\_

a lot \_\_\_\_

## Appendix F

### Mother Global Ratings

1. Approximately how long did you spend talking with this mother? \_\_\_\_ minutes

2. How comfortable did this mother seem to be with you? (think about how easy/hard it was to establish rapport)

-3	-2	-1	0	+1	+2	+3
not at			neutral			very
all						

3. How comfortable did this mother seem to be with participating in this research project? (did she express enthusiasm? reservations? did she ask questions that showed she was interested? wants copy of results?)

-3	-2	-1	0	+1	+2	+3
not at			neutral			very
all						

4. How concerned did this mother seem to be with appearances? (i.e., presenting herself and her child in a positive light (e.g., tells child to speak English, etc))

-3	-2	-1	0	+1	+2	+3
not at			neutral			very
all						

5. How confident do you feel that this mother will complete and return the questionnaire package?

-3	-2	-1	0	+1	+2	+3
not at			neutral			very
all						

6. In your opinion, how "acculturated" does this mother seem to be? (consider English language fluency, spontaneous comments about Canadian culture/educational system, etc.). You may also probe with the following questions:

- How long have you been in Canada?
- How do you feel about living in Canada?

-3	-2	-1	0	+1	+2	+3
not at			neutral			very
all						

## Appendix G

### Observer-Child Rating Scales

0	1	2	3	4	5	6
not at all cooperative			somewhat cooperative			very cooperative

0	1	2	3	4	5	6
not at all relaxed			somewhat relaxed			very relaxed

0	1	2	3	4	5	6
not at all attentive			somewhat attentive			very attentive

0	1	2	3	4	5	6
not at all friendly			somewhat friendly			very friendly

0	1	2	3	4	5	6
not at all happy			somewhat happy			very happy

Comments (Note odd behaviors, salient examples of behavior, appearance issues, etc.):