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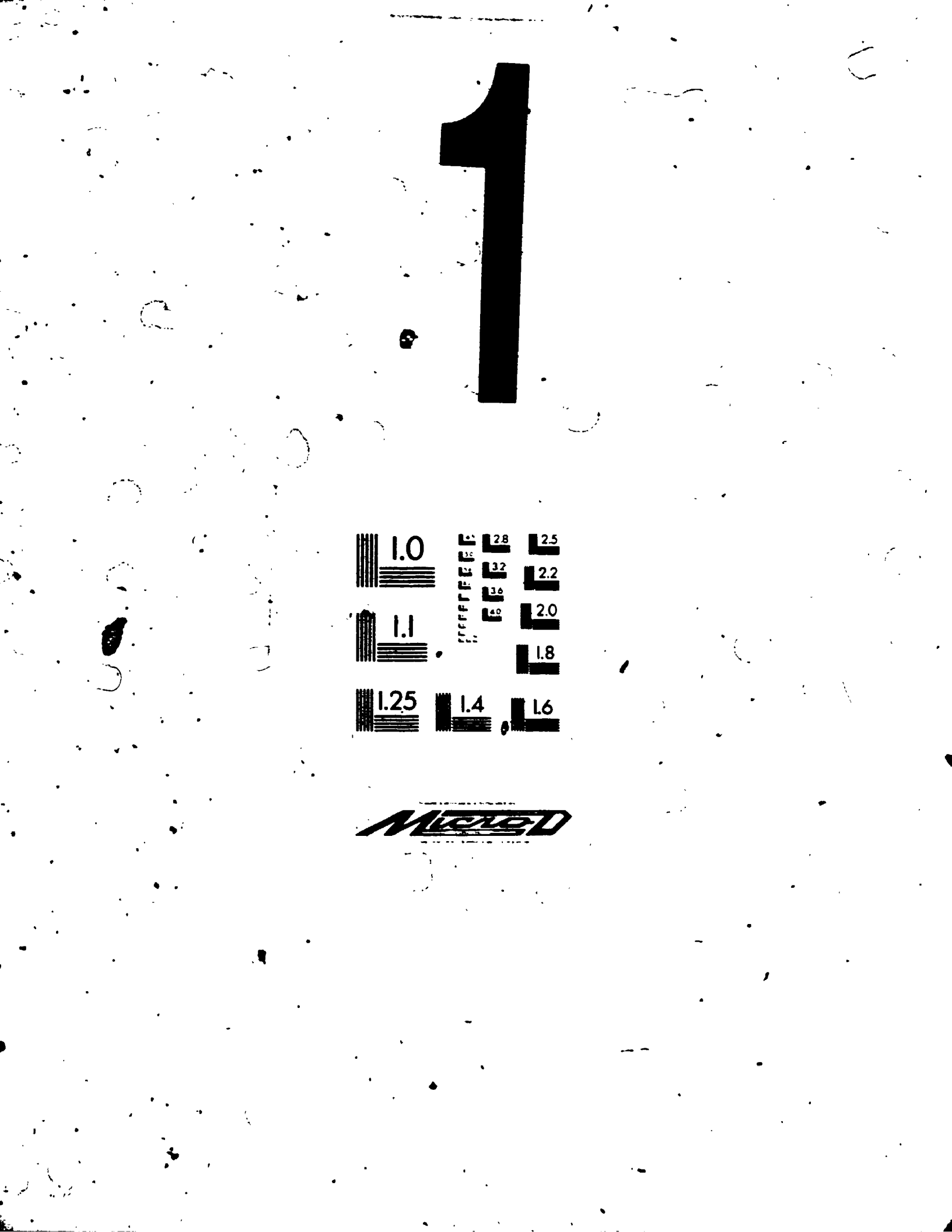
Maternal Adaptation To A Hearing-impaired Child: A Comparison Of The Mediating And Moderating Effects Of Social Support And Personality

Alexandra Louise Quittner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MATERNAL ADAPTATION TO A HEARING IMPAIRED CHILD: A COMPARISON OF THE MEDIATING AND MODERATING EFFECTS OF SOCIAL SUPPORT AND PERSONALITY

by

Alexandra Louise Quittner

Department of Psychology

Submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

Faculty of Graduate Studies
The University of Western Ontario
London, Ontario

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Abstract

The current study assessed the relationships among parenting stress, social support, marital satisfaction and psychological adjustment In a sample of 96 mothers of hearing impaired preschoolers and 118 matched mothers of non-disabled children. Two competing models of the effects of social support and specific personality variables on adjustment were tested: the "buffer" and mediator models. Respondents completed a structured interview and a series of standardized questionnaires. Factor analyses of the independent variables yielded two dimensions of parenting stress and three dimensions of social support.

Significant group differences were obtained on the measures of parenting stress, marital satisfaction and psychological adjustment. Moderating effects for social support and the personality variables of endurance and nurturance were not obtained. However, path analytic techniques showed a significant mediating effect for perceived support and marital satisfaction. Higher levels of parenting stress produced decreased perceptions of emotional support, which in turn led to elevated symptoms of depression and anxiety. The results of the study were interpreted in light of the larger social support literature.

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Finally, I would like to thank the 214 mothers who allowed us to come into their homes to share the high points and the challenges of their parenting experiences.

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CHAPTER ONE

REVIEW OF THE LITERATURE

Early childhood deafness is a significant medical problem that alters the educational and psychological development of the child, and has major implications for family adjustment (Meadow, 1980). Research has consistently revealed that deaf children are at greater risk for behavioral and emotional disturbances, language delays, and more frequent hospitalizations than children with normal hearing (Freeman, Malkin & Hastings, 1975; Schlesinger & Meadow, 1972). For example, studies have reported significantly higher rates of behavior problems in hearing impaired children than in the general population. Although prevalence rates vary across studies from 9-22%, a well-designed survey study of all deaf children aged 5-15 in the Greater Vancouver area reported that 22.6% of these children had moderate to severe behavioral problems (Freeman, Malkin & Hastings, 1975) as compared to 2% in the normal population (Joint Commission on Mental Health of Children, 1970).

In raising a deaf child, parents are faced with a number of chronic stresses. These include frequent visits to speech therapists, controversies about oral versus manual communication mode, and decisions about educational placement (Moores, 1982). Mothers, in particular, are frequently asked to assume the dual role of parent and language teach-

er, spending an average of three hours per day on language training from age two through twelve (Schlesinger & Meadow, 1972). These chronic stresses may substantially drain parents' energy, time and financial resources, potentially leading to emotional reactions of frustration, depression and social isolation (Meadow, 1980). The purpose of the current investigation was to assess the specific parenting issues and extent of stress experienced by mothers raising a deaf child. A second objective of the study was to examine the relationships among parenting stress, social support, personality and psychological adjustment in an effort to develop and test a model of their potential mediating and moderating effects.

Previous research on parents of children with various types of handicaps has shown that although both parents are affected by the presence of a disabled child, mothers and fathers tend to perform very different roles. Mothers typically assume the role of primary caregiver, taking major responsibility for the everyday needs of the child. They have consistently reported experiencing more constraints on their personal freedom and development, poorer health, and more deleterious effects from the stress of daily management than fathers (Holroyd, 1974; Tavormina, Boll, Dunn, Luscomb, & Taylor, 1981). In contrast, fathers tend to be more involved with job-related and financial concerns, and less involved in daily child-rearing activities (Cummings,

Bayley, & Rie, 1976).

While several authors have described the stresses associated with a diagnosis of deafness and the initial phase of adjustment (e.g., Gregory, 1976; Goldberg, 1979; Vernon, 1972), little research has been conducted on the effects of chronic strains on family members, or on factors which may facilitate their coping and adaptation. Anecdotal accounts have suggested several variables that may influence successful coping, including the personality characteristics of the parents, the temperament of the child, and the sources of support (e.g., social, informational, professional) available to the family (Hersch & Solomon, 1973).

In sum, very little is known about parental adaptation to deafness, and more specifically, maternal adjustment. Most of the literature on deafness is based on anecdotal descriptions of mothers struggling with feelings of guilt and anger, with few empirical attempts to identify and measure the critical variables. However, two recent lines of research relevant to the process of adjustment were used to provide a conceptual framewprk for the current investigation: (a) recent trends toward a family-oriented approach to the evaluation and management of a variety of medical disorders (Belsky, 1981; Fewell & Gelb, 1983); and (b) a burgeoning literature on the stress-illness process, which has identified variables such as social support and

personality characteristics as moderators of the negative effects of stress (Cobb, 1976; Gottlieb, 1981; Turner, 1983).

Impact of a Handicapped Child on the Family

Early research on chronically disabled children tended to view the identified child as an isolated entity, ignoring the social context of the family (cf., Murphy, 1979; Sabbeth, 1984). Recent trends have shifted the focus of research towards an evaluation of the functioning of the child within the family system. The success of a child's adaptation has been shown to be dependent upon the attitudes and responses of the parents (Lyon & Preis, 1983; Nihira, Mink, & Meyers, 1981; Stein & Jabaley, 1981). Similarly, researchers are beginning to evaluate the impact of the handicapped child on the psychosocial functioning of family members (Dunst, Trivette & Cross, 1986).

Families of handicapped children appear to be particularly vulnerable to the negative effects of stress (Fotheringham & Creal, 1974; Holroyd & McArthur, 1976) as evidenced by increased divorce and suicide rates (Price-Bonham & Addison, 1978), a greater risk for child abuse (Embry, 1980), and emotional manifestations of stress such as depression, anger and anxiety (Holroyd, 1974). In addition, several studies have shown that parents of chronically disabled children report increases in social

isolation and decreases in social mobility (Kazak & Marvin, 1984; Marcus, 1977). However, due to the methodological shortcomings of much of the prior research, these results are difficult to interpret. Often important variables such as socioeconomic status, family size, age of the handicapped child and severity of the diagnosis are not considered in analyses of family adjustment. Furthermore, in several studies, control groups are either missing or inadequate (Byrne & Cunningham, 1985).

Although a number of studies suggest that the impact of a handicapped child on the family is predominantly negative (Roos, 1982), the research results are somewhat inconsistent. For example, while several studies have reported divorce rates as high as twice those in the general population (Tew, Payne, & Laurence, 1974), some reports indicate no differences in marital adjustment (Freeston, 1971; Kazak & Marvin, 1984), and a few suggest that the presence of a handicapped child brought parents closer together (McAndrew, 1976). Certainly, a variety of factors contribute to parental adjustment, including the personality characteristics of the parents, their skills in developing coping strategies, and their level of social support (Gallagher, Beckman, & Cross, 1983; Gallagher, Cross, & Scharfman, 1981; McKinney & Peterson, 1987). Unfortunately, the vast literature on stress and coping has rarely been utilized to address these issues.

While several researchers have suggested that parents of chronically disabled children experience greater stress than parents of normal children, only a few investigators have measured levels of stress directly (Kazak & Marvin, 1984; McKinney & Peterson, 1987). For example, Beckman-Bell (1980) studied the relationship between specific characteristics of handicapped infants and the number of parent and family problems reported by their mothers. Mothers were assessed for availability of family resources and levels of stress. Infants were also assessed on a variety of behavioral and cognitive measures. The results of the study showed that high levels of parental stress were significantly associated with the presence of additional care-giving demands and a slower rate of developmental progress by the infant. In addition, 66% of the variance in parent and family problems could be accounted for by the number of additional or unusual care-giving demands. Thus, the extra child care demands placed on the mother accounted for a substantial proportion of reported stress.

The effects of social support on families of handicapped children. In terms of moderators of stress, only a handful of investigations have systematically assessed the relationships between parental stress, social support, and psychological adjustment (Crnic, Greenberg, Ragozin, Robinson & Basham, 1983; Frydman, 1981), primarily focusing on parents of mentally retarded children (Friedrich,

Wilturner, & Cohen, 1985; Petersen, 1984). Conflicting results have emerged with regard to the effectiveness of social and personal resources as buffers of stress. While a majority of the studies found main effects for social support (Dunst & Trivette, 1986; Frydman, 1981; Petersen, 1984), interaction (i.e., buffering) effects were found by some studies (Crnic et al., 1983; Dunst & Trivette, 1986), but not by others (Frydman, 1981; McKinney & Peterson, 1987). Methodological problems such as inadequate support measures (McKinney & Peterson, 1987), differing definitions of stress (i.e., stressful life events versus parenting stress) and confusion over the statistical differences between mediators and moderators (Frydman, 1981) may account for the discrepant results.

Although it did not address moderating effects directly, a recent study by Kazak and Marvin (1984) provided valuable descriptive information on parental adaptation to a chronically disabled child. It assessed the stress levels and social support networks of 56 families with a child with spina bifida and 53 families with a normal child. Multiple measures of stress were employed including the Parenting Stress Index (Abidin, 1983), the Dyadic Adjustment Scale (Spanier, 1976), and the Langner Symptom Checklist (Langner, 1962). Several network support characteristics were also examined such as size, density, and boundary.

The results of the study confirmed the authors'

hypotheses that parents of handicapped children experience higher levels of stress than parents of nonhandicapped children. Mothers of spina bifida children reported higher levels of stress on the Langner Symptom Checklist and the Parenting Stress Index. In particular, the spina bifida mothers perceived their children as more demanding on a daily, care-giving basis and reported having significantly less time by themselves or with their spouses. These mothers also reported higher levels of depression and fewer feelings of competence as parents. In contrast, no significant differences between the handicapped and nonhandicapped parents were found on measures of marital satisfaction.

Kazak and Marvin also found substantial differences between the groups on indices of network size, density and boundary. The social support networks of the parents of handicapped children were significantly smaller than those of the comparison group. Additional analyses revealed that the differences were accounted for primarily by the size of friendship networks as opposed to family networks, with handicapped families having a smaller number of friends on whom to rely. Handicapped families also tended to have more closely knit membership within their networks than the comparison families. Several studies have suggested that extended family involvement (i.e., networks composed primarily of family members) may be associated with higher levels of stress and limited access to new resources

(Wilcox & Birkel, in press).

Kazak and Marvin made several important recommendations for future research and treatment. First, the specific sources of parenting stress (e.g., time constraints, discipline problems) should be identified. Following the identification of these stresses, treatment strategies to increase parenting skills and perceptions of competence should be developed. Further, the authors highlighted the importance of expanding the types of social support available to parents of handicapped children.

The impact of a deaf child on the family. Several anecdotal accounts have delineated the large number of chronic stresses these families often face; however, few studies have measured levels of stress directly or have attempted to identify variables that facilitate coping and adjustment. In the only empirical investigation of the functioning of families of hearing impaired children, Tavormina et al. (1981) compared 144 families of diabetic, asthmatic, cystic fibrotic, and hearing impaired children on measures of personality styles, attitudes, and child behavior problems. They found that the parental attitudes of hearing impaired parents were significantly more negative (e.g., less accepting and trusting) than the attitudes of the other disability groups. Further, the parents of hearing impaired children reported a substantially higher number of behavior problems, particularly in the areas of aggres-

sion and activity level than the comparison groups.

In summary, a large body of research indicates that families of handicapped children must cope with significantly higher levels of stress and are therefore vulnerable to psychological disturbance. However, little is known about specific sources of stress or processes of adaptation to stress (Crnic et al., 1983). Although variables such as the personality characteristics of the parents and their level of social support have been considered important factors in successful adjustment, few studies have directly assessed their impact. In the current study, models incorporating these variables were developed and tested to determine their effects on parental stress.

Models of Stress

Several definitions and conceptualizations of the term "stress" have been proposed by researchers, leading to considerable discussion and debate (Meichenbaum & Turk, 1982; Womack, Vitaliano & Maiuro, 1983). Differing definitions of stress have led to the formulation of three basic models describing an individual's responses and adaptation to stress. First, Hans Selye defined stress as the "general adaptation syndrome" that consists of all nonspecific physiological reactions to noxious events (Selye, 1978). This was the original conceptualization of stress and led to a considerable body of research outlining physio-

logical responses to stress.

A second model of stress, researched by Holmes and Rahe (1967) views stress as those factors, generally external situational stimuli, which demand a response or change in behavior from the individual. The typical research paradigm has consisted of the assessment of stressful life events and subsequent health problems (Rahe, 1969; Rahe & Arthur, 1978). The focus in this model has been on the disruptiveness of the event and its demands for change.

Finally, Lazarus (1981) has proposed a more complex "transactional" model in which stress is viewed as a transaction between both person and situational characteristics. Within this model, it is the person's perception of the stressfulness of the event and his or her appraisal of their ability to cope which ultimately defines the presence of stress (Lazarus & Launier, 1978).

Lazarus has also differentiated between primary and secondary appraisal of the event (Lazarus, 1981). Primary appraisal concerns perceptions of the event itself as either irrelevant, benign-positive or stressful. A stressful event is then appraised as a threat or a challenge . Secondary appraisal, on the other hand, is an evaluation of both the personal and social resources available for coping.

In the current study, stress was conceptualized specifically in terms of parenting tasks and appraisals of the parenting role (e.g., competence, restriction of role).

Stress was defined as the mother's perception that the parenting demands taxed or exceeded her resources and endangered her well-being (Lazarus & Launier, 1978).

Within the transactional framework, social support would affect secondary appraisals of the ability to cope, in turn, affecting mothers' psychological adjustment. For example, mothers who perceived their levels of parenting stress as threateningly high, but who also evaluated their social support resources as enhancing their coping ability, would experience fewer symptoms of depression and anxiety (i.e., a moderating effect of social support). Specific personality traits (e.g., nurturance, endurance), on the other hand, might affect either the mother's primary or secondary appraisals of stress. A personality characteristic such as nurturance, might affect a mother's initial perception of parenting a handicapped child as a challenge rather than a threat, or might secondarily affect her appraisal of her internal resources as adequate for coping with the task. Although Lazarus' conceptualization of stress is relevant to the current investigation of parenting stress, the present study did not focus on testing formal models of stress or on assessing coping strategies per se.

Social Support and Personality Variables as Moderators of Stress

A growing body of research over the past twenty years

has documented a positive relationship between stressful life events and illness (Dohrenwend & Dohrenwend, 1974; Rabkin & Streuning, 1976). Despite numerous conceptual and methodological limitations (Thoits, 1983), researchers have found a consistent association between increased life stress and a wide variety of physical and psychological symptoms (see Rahe & Arthur, 1978 and Mueller, 1980 for reviews). The correlations, however, between stressful events and subsequent illness have been low, ranging from .17 to .35, generally accounting for only 6-9% of the explained variance in illness (Dohrenwend & Dohrenwend, 1978; Rabkin & Streuning, 1976). This has led researchers to speculate that other factors must moderate the stress-illness process. Certainly exposure to stressful life events or other chronic stressors does not have an invariant impact upon health outcomes; some individuals who experience numerous life stresses do not succumb to illness or psychological disturbance, while others who experience minor stresses may become very ill (Hinkle, 1974).

Recent research has attempted to identify those factors that "buffer" or cushion an individual from the negative consequences of exposure to stress. The identification of stress-moderating factors has important implications for several reasons: a) these factors may improve predictions of the outcomes of exposure to stress, b) psychological interventions may be targeted to those individuals who are most

vulnerable to the stressor, and c) adaptation to acute or chronic stress may be better understood. Two general types of moderating variables, social support and personality characteristics, have been evaluated for their impact on the stress-illness relationship. Although social support has been conceptualized and measured in a variety of ways (see Turner, 1983 for a review), most researchers have assessed either the quantity of social contacts (social networks) or the quality of social support (perceived emotional support).

In contrast to the large number of studies that employ social support as a moderator of stress, only a modicum of research has examined relevant personality variables within the context of stress and illness (Gentry & Kobasa, 1984). Several of these studies have compared both independently and in combination, the effects of social support and personality traits. Interactions between these moderating variables may also be important in developing a model which predicts adaptation to stress.

It is important to distinguish between the two basic processes by which social support and personality traits influence reactions to stress: the direct versus indirect path. The direct path predicts that these variables will exert main effects on the outcome criteria. For example, individuals who lack social support may suffer somatic symptoms independent of their level of stress. In contrast, the indirect path assesses either the mediating or moderat-

ing functions of third variables. Although the terms "mediator" and "moderator" are often used interchangeably in the literature, they are conceptually and statistically different (Baron & Kenny, 1986).

Generally, a mediating variable influences the relationship between a predictor and a criterion, and is ideally tested using path-analytic or structural modeling techniques. For example, in the current study, parenting stress was expected to influence perceptions of emotional support, thereby indirectly affecting levels of psychological adjustment. Mothers who experienced high levels of parenting stress might develop more negative perceptions of their supportive relationships, which in turn would lead to greater symptoms of depression and anxiety.

Moderator variables, on the other hand, involve an interaction between the independent and dependent variable, and are most effectively tested using a multiple regression framework. In the current study, an interaction between level of stress and the presence of social support (or a personality trait) was expected. Mothers experiencing high levels of parenting stress who also had well-developed support systems were expected to report fewer depressive symptoms when compared to a high stress/low support group. This moderating effect of social support or personality characteristics has been termed the "buffer hypothesis" because the third variable is expected to buffer the

individual from the potentially negative impact of the stressor. Important treatment implications may arise from research on the buffer hypothesis: high-stress groups lacking in social or personal resources may be at greatest risk for maladjustment or illness, and should be targeted for appropriate interventions.

Social Support. The concept of social support (Cobb, 1976; Dean & Lin, 1977) has been referred to as meaningful social contact (Cassel, 1976), social bonds (Henderson, 1980), and social networks (Mueller, 1980). A recent formulation by House (1981) captures the multidimensional nature of the construct. Social support is "an interpersonal transaction involving one or more of the following: 1) emotional concern (liking, love, empathy), 2) instrumental aid (goods and services), 3) information (about the environment), or 4) appraisal (information relevant to self-evaluation)" (p. 39).

Although there is some evidence of both a direct and indirect link between social support and stress outcomes, conflicting results have emerged and comparability between studies has been problematic due to varying definitions and operationalizations of the support construct (see Cohen & Wills, 1985 for a current review). Further, several researchers have suggested that perceived emotional support and network size are functionally different, and should be measured as independent dimensions of support (House, 1981;

Procidano & Heller, 1983; Schaefer, Coyne & Lazarus, 1981). For example, while the size of a person's network may be positively associated with the perceived availability of supportive contacts, a large social network may also bring with it increased demands and conflicts. In the review that follows, results of studies primarily assessing network aspects of social support will be reviewed first, followed by studies assessing perceived emotional support.

Network support. The social network characteristics most frequently assessed in research on social support are: size (the number of persons with whom the individual socializes), strength of ties (time and intensity involved in social interaction) and density (the extent to which network members know and contact each other) (Mitchell & Trickett, 1980; Turner, 1983).

A series of studies by Hirsch (1979, 1980) have attempted to identify the important psychological dimensions of social networks including density, multidimensionality (engaging in a wide range of activities with network members) and satisfaction. Multiple measures of network characteristics were used including a network matrix and a daily log of social interactions (recorded over a period of twenty-seven days). An in vivo stress situation for college students, final exam period, was chosen to assess the relationships between stress and network support.

Unfortunately, no direct measure of stress was

included, making it difficult to assess the buffering effects of social contacts. However, some interesting relationships between density of networks and emotional support were obtained. Students in low density support networks (i.e., measured by the number of relationships which existed among members of the individual's network as a proportion of the total network) reported a significantly higher mean satisfaction with their emotional support than students in high density networks. Low density networks were also more multidimensional, favoring more varied interactions and greater role complexity. The author speculated that having more diverse input and role models might result in an enhancement of the ability to cope with change. Students in the high density networks spent more time receiving emotional support, but were less satisfied with their relationships.

Hirsch (1980) expanded his social support construct in a later study to include cognitive guidance, social reinforcement, tangible assistance, socializing and emotional support, in addition to the network factors cited above. Social support was evaluated through structured interviews, daily interaction logs and "maps" of the interconnectedness of network members. The ability to cope with major life changes was assessed in widowed younger women and mature women returning to school using the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth & Covi, 1974),

the Profile of Mood States (McNair, Lorr, & Droppleman, 1971) and a semantic differential scale assessing self-esteem.

Again, lower density support systems and multidimensional friendships were significantly associated with greater satisfaction with support and better mental health. In particular, high density family networks were associated with greater symptomatology, poorer mood and lower self-esteem. Although the results of these studies do not address the buffer hypothesis directly, they point to the complexity of the associations between different types of social support and psychological outcomes. For example, a denser structure of contacts may be related to poorer health outcomes, whereas having a less integrated but more varied set of social contacts may be associated with better adaptation (Croog, 1970). This may be particularly relevant to mothers raising chronically-ill or handicapped children, who may benefit from observing other parents using different discipline techniques with their children employing coping strategies specific to the impairment (Cochran & Brassard, 1979).

Several recent studies have found similar patterns between network size and psychological outcomes, highlighting the importance of distinguishing between structural and emotional aspects of social support due to their differential effects. For example, Schaefer et al. (1981)

compared network size and three types of perceived support (i.e., tangible, emotional, and informational) in relation to stressful life events, psychological symptoms, and physical health status in a longitudinal survey study of 100 middle-aged men and women. The social network index was positively correlated with depression, whereas the perceived support measures were inversely correlated with depression and negative morale. These results support Hirsch's contention that large social networks may be associated with increased demands and constraints.

Turning now to more direct tests of the buffer hypothesis, only a handful of investigations of the moderating effects of network size on stress have been conducted (Barrera, 1981; McFarlane, Norman, Streiner & Roy, 1983; Schaefer et al., 1981; Thoits, 1982). These studies measured the quantitative and qualitative aspects of support in such a way that comparisons between the two dimensions could be made.

McFarlane et al. (1983) assessed the relationships between social support, stress and several measures of health status in a longitudinal study. Results of the study suggested a complex relationship between social support and stress. No evidence for the buffering effect was found for either network size or perceived quality of support. However, path analytic techniques revealed a causal relationship between helpfulness of support (quality) and stressful

events, indicating that an individual with more helpful social support was less likely to experience stressful events. Network size, on the other hand, did not have any protective effect on health outcomes; stressful events, however, led to increases in the size of the network, but reduced perceptions of its helpfulness.

In contrast to the results reported above, Barrera (1981) examined the relationship between social support and psychological well-being in a sample of pregnant teenagers and found a significant buffering effect for network size and depression. The Arizona Social Support Interview Schedule (ASSIS; Barrera, 1981) was used to assess several network support functions and included a distinction between "conflicted" and "unconflicted" networks. Conflicted support was defined as support received from a network member who was also a significant source of interpersonal conflict. Adolescents with large, unconflicted networks experienced less depression under high levels of stress than adolescents with small total and small unconflicted networks. No significant interaction was found between qualitative support measures and stress for any of the psychological adjustment measures (buffer effects); however, satisfaction with support accounted for 13% of the variance in total symptom and depression scores (main effects) once the effect of stressful events was partialled out.

The Barrera study raises the possibility that social

support may exert both main and buffering effects in the stress-illness relationship depending upon the contextual aspects of the study such as type of stressor, type of population and the operationalization of the social support construct (Cohen & Wills, 1985; Eckenrode & Gore, 1981; Turner, 1981).

In summary, studies of the structural characteristics of social support have yielded mixed results. Most studies have found that network aspects of support do not moderate the effects of stress and in fact, network size is often negatively correlated with perceived support and satisfaction. On the other hand, a few studies (Barrera, 1981; Sandler & Barrera, 1984) have found support for the buffer hypothesis, particularly when conflicted and unconflicted network measures were compared.

Perceived emotional support. In studies of the buffering effect of perceived support, researchers have attempted to assess the individual's cognitive appraisal of support, including perceptions of being loved and esteemed. The two conceptualizations of perceived support most frequently used in investigations of the impact of social support were advanced by Cobb (1976) and Weiss (1974). Cobb conceived of support as: "1) information leading the subject to believe that he is cared for and loved; 2) information leading the subject to believe that he is esteemed and valued; and 3) information leading the subject to believe that he belongs

to a network of communication and mutual obligation" (p. 300). Weiss's "provisions of social relationships" is quite similar and proposes six categories for measurement: attachment, social integration (similar to network measures), opportunity for nurturing, reassurance of worth, reliable alliance, and opportunity for guidance.

One of the earliest and most frequently cited studies illustrating the buffering effects of perceived social support was conducted by Nuckolls, Cassel and Kaplan (1972). Pregnancy complications of 170 women were blindly assessed by physicians. Subjects were also classified on the dimensions of stress (high, medium, or low) and social support (high and low). Social support was assessed by an index measure of "psychosocial assets" which primarily tapped subjective feelings of being supported.

No overall relationship between life stress and birth complications was found. However, when perceived support was taken into account, the highest proportion of birth complications was seen in women under conditions of high stress/low social support (91%). These women were almost three times as likely to suffer serious complications (e.g., still birth, threatened abortion) as the women in the high-stress/high-support condition (33.3%). Although this study has been criticized for its inadequate operationalization of "psychosocial assets," the findings are consistent with the notion that high levels of social support may serve to

protect an individual from the adverse effects of life stress.

Similar buffering effects were also found by Gore (1978) who used a longitudinal design to examine the impact of job loss on the physical and mental health outcomes of 100 once stabely-employed men. Social support was measured by a 13-item index primarily assessing perceived support from wife, friends and relatives. Using a tertile split, two levels of support were established with the upper two-thirds being categorized as "supported" and the lowest one-third as "unsupported". Results of the study revealed that unsupported men evidenced significantly higher elevations in measures of cholesterol, illness symptoms and affective responses than supported men.

Although many features of the above study represent methodological advances over prior research (e.g., longitudinal design, use of an objective physiological measure, and assessment of the impact of a "real" stressor as opposed to a life events schedule), several interpretive limitations remain. Perhaps the most obvious limitation of the study was the ad hoc nature of the social support scale and the failure to provide reliability or validity data on it. Further, perceptions of support and frequency of activities outside the home were treated as interchangeable constructs, with no attempt to operationalize their separate functions or effects. This methodological weakness not only made

interpretation of the results difficult, but limited the possibility of integrating the findings with those of other researchers (Schaefer et al., 1981; Thoits, 1982a).

LaRocco, House and French (1980) have provided additional support for the buffering effects of emotional support on job-related stress and mental and physical health outcomes. Several conceptual and methodological advances were noted in this investigation. First, it assessed situation-specific job stresses (e.g., role conflict, work-load) rather than assessing global stress on a life events checklist. Second, job strains (e.g., dissatisfaction, boredom) were conceived of as the secondary negative effects of job stress and were measured separately. And finally, social support was measured as a continuous variable for the regression analysis rather than being dichotomized into high and low-support groups.

A randomly stratified sample of 636 men from 23 occupations was used for the analysis. Results of the analyses showed that social support buffered the effects of job stress on mental and physical health outcomes (e.g., anxiety, depression, irritation and somatic symptoms), but did not buffer the negative effects of job-related strain. Instead, social support exerted a direct influence on job strain. Job-related sources of support (e.g., friendship with a co-worker) were also identified as the most effective moderators of stress. These authors called for an end to

studies "proving" that support is related to stress and health outcomes, and movement toward greater specification of the types of support which are effective for particular types of stress.

While more rigorous operationalization of the social support construct, and greater specification of sources of stress and support are needed, controversy over whether social support directly or indirectly influences the stress-illness relationship still exists. Several investigators have found that rather than moderating the impact of stress on health outcomes, social support exerts a direct, main effect on health outcomes regardless of level of stress (Aneshensel & Frerichs, 1982; Dean & Ensel, 1982; Mitchell & Moos, 1984; Schaefer et al., 1981) or exerts both main and interactive effects (Barrera, 1981; Henderson, 1980; Husaini, Neff, Newbrough & Moore, 1982; LaRocco et al., 1980; Sandler & Lakey, 1982; Turner & Noh, 1983). A main effect of social support may occur in two ways: social support may enhance health and psychological morale, functioning as a health-promotive variable, or support may protect individuals from exposure to certain types of stressors.

For example, Turner (1981) used Cobb's conceptualization of perceived support to assess the effects of stress (i.e., using a 22-item life-events scale) on the psychological well-being (e.g., anxiety, depression, anger) of 293

new mothers. All measures were completed at two points, after birth and six months later. In initial multiple regression analyses, social support was found to contribute independently and significantly to the psychological distress scores, regardless of stress level. When the main effects of social support were controlled, no significant interaction between stress and support was found. In a follow-up analysis (Turner & Noh, 1983), the sample was trichotomized on the variable of social class. The results indicated that emotional support buffered the effects of stress only for the low socioeconomic group.

In their comprehensive review of the stress-social support literature, Cohen and Wills (1985) attempted to make sense of the contradictory findings among studies, with some studies finding main effects for support, some studies finding indirect, buffering effects, and some studies finding no relationship at all between stress outcomes and social support. They divided the social support literature into two broad camps: studies employing global structural measures of support (e.g., index of neighborhood cohesion) and studies using functional measures of support (e.g., emotional support, material resources) which could be either global (e.g., availability of a confidant) or specific (e.g., providing aid).

The authors went on to predict main effects for investigations of the global structural properties of

support, and moderating effects for functional aspects of support closely linked to the specific stressor (e.g., provision of economic aid and financial stress). Their rationale for these predictions was that global, structural measures of support assess the number of available relationships or extent of social integration, and as such represent broad-based resources which may be correlated with overall levels of well-being (i.e., main effects). In contrast, when high levels of stress are present, the condition under which a moderating effect may be tested, a functional measure which taps the specific, appropriate resource needed by the individual will be sensitive to buffering interactions.

Although the Cohen & Wills review presents a useful method for sorting through the maze of conflicting findings, their scheme for categorizing and predicting support functions may be somewhat simplistic. For example, Frydman (1981) used a 6-item index of neighborhood interaction to look for both the main and moderating effects of social support on stressful life events in a sample of parents of children with leukemia and cystic fibrosis (CF). This index of neighborhood interaction fell neatly under Cohen and Wills' heading of a global structural measure of support, which the authors predicted should lead to main effects, but no buffering effects. As predicted, significant main effects were found for both clinical samples, however

buffering effects were also found for parents of children with CF.

Despite the lack of clear resolution in the Cohen and Wills review, the authors made several useful methodological suggestions that have been incorporated into the current research. These include: differentiating between acute life-event stressors and chronic, on-going strain, closely matching the stressor and type of support, and utilizing social support measures for which reliability and validity data are available.

The current study has focused specifically on parenting stress rather than on stressful life events, and has attempted to link the stressors and support resources to those relevant to raising a hearing-impaired child. Measures have been selected carefully with regard to their psychometric properties, and multiple indicators of each variable have been employed. Both the structural and functional aspects of support have been assessed, and differential predictions for their impact have been made. A measure of "conflicted" support was also included.

Finally, several authors have urged researchers to consider the importance of personality variables in the stress-illness process. Support processes may function differently for certain personality types (Kobasa, 1979). An attempt was made in this study to include personality variables which might affect parenting a handicapped child.

Personality Variables and Social Support

In the search for greater specification of the conditions under which social resources moderate the negative effects of stress, researchers have begun to include personality factors in their models of the stress-illness process. Personality characteristics are hypothesized to influence adaptation to stress in two primary ways. First, certain constellations of personality traits may combine to increase resistance to the effects of the stressor by enhancing the individual's coping processes (Lazarus, 1981). Kobasa's extensive research on the construct of "hardiness" is illustrative of this application of personality resources as a resistance factor (Kobasa, 1979; Kobasa, 1982; Kobasa & Puccetti, 1983).

Second, individuals with certain dispositional characteristics may perceive themselves as having more control over negative events, experience events as less stressful, and consequently utilize social support resources more effectively. Research on locus of control as a moderator variable has pursued this line of inquiry (Anderson, 1977; Johnson & Sarason, 1978; Lefcourt, Miller, Ware, & Sherk, 1981; Lefcourt, Martin & Saleh, 1984; Sandler & Lakey, 1982). Due to the limited nature of this review, only studies assessing the influence of locus of control will be discussed.

Locus of control research has focused on the extent to

which individuals perceive themselves as having control over life events. Typically, the Rotter Internal-External Locus of Control Scale (1966) has been used to assess whether an individual has an internal (low score) or external (high score) locus of control, hypothesizing that internally-oriented people who have a greater perception of control over negative events will be less adversely affected by stress than externally-oriented subjects who view themselves as having little control over events. The original work in this area focused on the controllability of aversive electric shock in the laboratory (Glass & Singer, 1972; Lefcourt, 1973). Subjects who believed that they were in control of the aversive stimulus experienced less stress than subjects who believed they had no control.

More recently, Johnson and Sarason (1978) found that relationships between negative life events (assessed by their Life Experience Survey) and measures of depression and anxiety were significantly correlated only among students with an external locus of control, whereas correlations for internally-oriented students did not reach significance. Similarly, Pearlin, Lieberman, Menaghan & Mullin (1981) found that a greater sense of personal mastery was predictive of less depressive affect even when exposure to life events and level of other difficulties were controlled.

While several studies have suggested that perception of control reduces the relationship between negative events and

psychological disturbance (Husaini & Neff, 1980; Lefcourt et al., 1981), others have failed to obtain these results (Fontana, Hughes, Marcus, & Dowds, 1979; McFarlane et al., 1983). Further, the process by which locus of control moderated the effects of stress is unclear.

In considering the impact of both locus of control and social support, researchers have proposed that these two variables may exert interactive effects on the stress-illness relationship. For example, Sandler and Lakey (1982) hypothesized that subjects with an internal locus of control would make better use of social resources than subjects with a primarily external orientation. This hypothesis was derived from prior research suggesting that internals are better able to make use of health-related information (Strickland, 1978) and utilize more task-focused coping behaviors than externals (Anderson, 1977). Since social support may be viewed as a multifaceted resource including information and coping strategies, it was reasonable to expect internally-oriented subjects to utilize social resources more effectively.

Results of the study confirmed that locus of control moderated the negative effects of stress. A significantly higher correlation between negative events and anxiety was found for the external as compared to internal control subjects. Differences between negative events and depression were not significant for the two groups. Locus of

control beliefs were also associated with the receipt and impact of social support.

Interestingly, while externals received a greater quantity of support than internals, the stress-buffering effect of support was manifested only for internals. The authors speculated that internals and externals might differ in the manner in which they elicit social support (e.g., actively soliciting support, passively receiving it), in the types of support they receive (e.g., emotional support, guidance), or in the actions they take after receiving support. The cross-sectional design of the study and the limited sample size (i.e., 93 undergraduates) precluded investigation of these more complex issues.

In summary, attempts to assess the contribution of personality variables to the stress-illness process have been limited in scope. Depending upon the type of stress, several other personality dimensions such as endurance and nurturance may be related to adaptation to stress, but have not been systematically examined. In the current study, mothers who are high on a trait such as endurance, may appraise their ability to cope with the demands of a handicapped child more positively than mothers who score lower on this trait. Similarly, mothers who are more nurturing may view their parenting task as a challenge rather than as a threat (i.e., primary appraisal in Lazarus' transactional mode). Although the mechanisms by which personality

variables influence adaptations to stress were outside the scope of the current research, attempts were made to assess the impact of these personality traits on psychological adjustment.

CHAPTER TWO

HYPOTHESES

Overview

On the basis of this review, two competing models were developed to assess the impact of chronic stresses on mothers of hearing impaired children. It was hypothesized that both personality dispositions, extent of social support and marital satisfaction would exert significant effects on mothers' coping and adaptation, but that the process by which these variables would influence psychological outcome would differ in the two models. In Model 1, social support was expected to moderate or "buffer" the impact of stress, whereas in Model 2, support was expected to mediate the relationship between stress and adjustment. Main effects for support and marital satisfaction were predicted in both models.

Second, personality characteristics hypothesized to be relevant to the development of support systems (i.e., affiliation) and moderation of the chronic stresses of raising a handicapped child (i.e., nurturance, endurance), were included and tested in the model. Finally, the research attempted to identify the areas of parenting most problematic for mothers of hearing impaired children when compared to a matched comparison group.

Specific Hypotheses

Hypothesis 1. Significant differences between the groups were predicted for measures of parenting stress, marital satisfaction and psychological adjustment. Mothers of hearing impaired children were expected to report higher levels of parenting stress on both the standardized measures (eg., the Parenting Stress Index) and on the ad hoc scales (eg., bedtime routines, discipline) than mothers of hearing children. In addition, mothers in the clinical sample were expected to score higher on measures of depression, anxiety and hostility, and lower on measures of marital satisfaction when compared to controls.

Hypothesis 2. Significant group differences were expected on the measures of social network size and satisfaction. Mothers in the clinical group were expected to be more socially isolated, with smaller support networks and lower ratings of satisfaction, than mothers in the control group.

Hypothesis 3. Two competing models of maternal adaptation to a hearing impaired child were developed and tested. Both models were comprised of five variables: parenting stress, social support (i.e., perceived emotional support and network properties), personality characteristics (i.e., endurance, nurturance), marital satisfaction and psychological

adjustment (eg., depression; anxiety). The Moderator Model, Model 1, was expected to account for significantly more of the variance than Model 2.

Hypothesis 3a: Moderator model. Model 1 predicted that personality, social support and marital adjustment would exert interactive ("buffer") effects on psychological adjustment (see Figure 1). Three variables were expected to interact with parenting stress: perceived emotional support, endurance and nurturance. For example, Model 1 predicted stronger relationships between perceived support and psychological adjustment for mothers experiencing high levels of stress than for mothers experiencing moderate or low levels of stress. This model, therefore, tested the conditions under which third variables such as social support might influence the relationship between stress and outcome. A similar pattern of relationships was expected for marital satisfaction and the personality characteristics nurturance and endurance.

Hypothesis 3b: Mediator model. In contrast, Model 2 predicted that social support and marital satisfaction would act as intervening variables, indirectly influencing the impact of stress on psychological adjustment (see Figure 2). This model addressed process questions related to how third variables affect the stress-illness relationship.

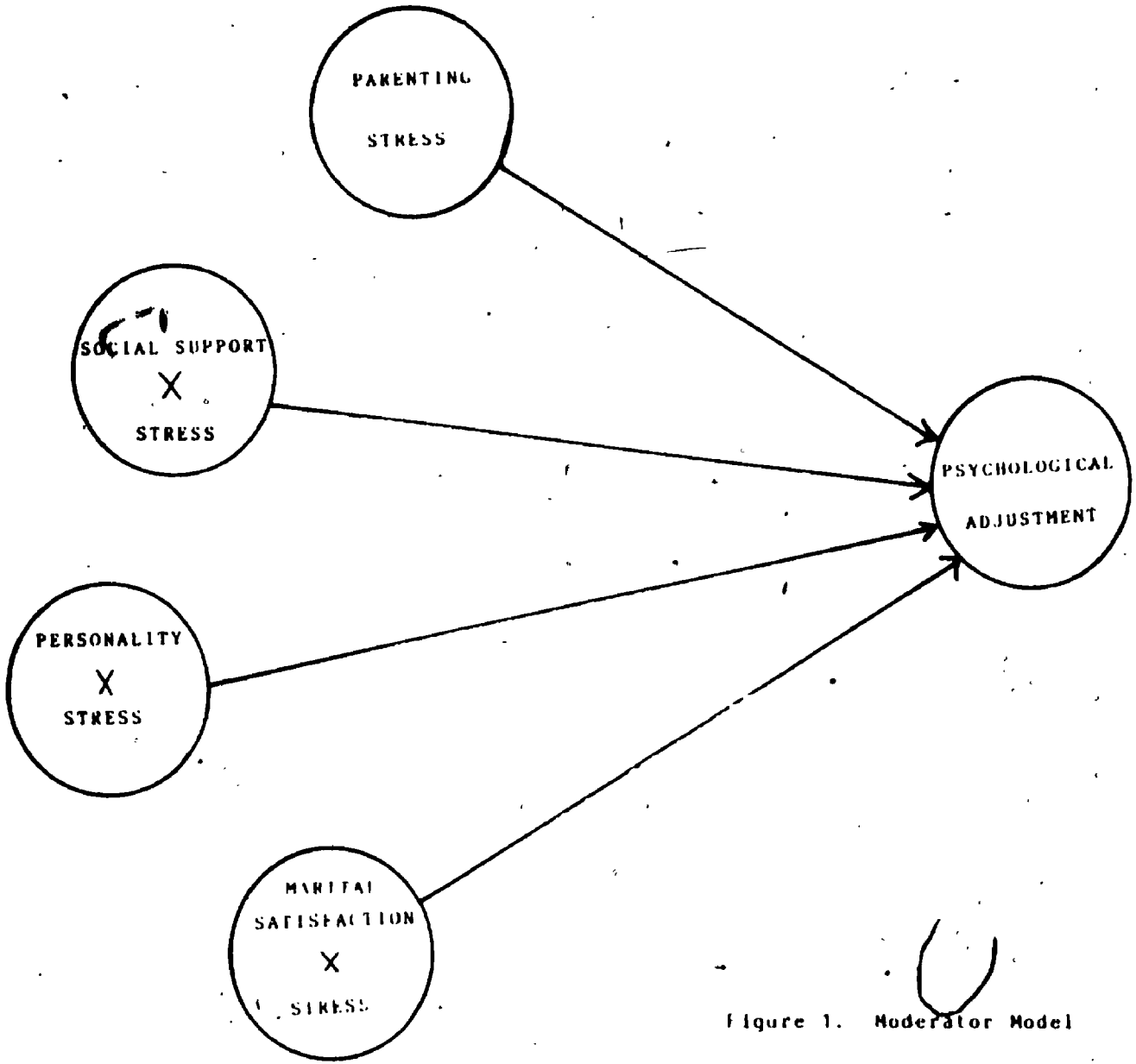


Figure 1. Moderator Model

Social support and marital satisfaction were expected to mediate perceptions of parenting stress, in turn, affecting levels of depression, anxiety and anger. Note that personality variables were not included in tests of the mediator model because of their usual position as exogenous variables, that is variables occurring before the onset of the stressor. Endurance and nurturance as measured in the present study were considered to be long-standing traits which would not be altered by levels of parenting stress (Jackson, 1984).

Hypothesis 3c. The same causal model (i.e., Model 1) was expected to account for the relationships among the variables in both the clinical and control groups.

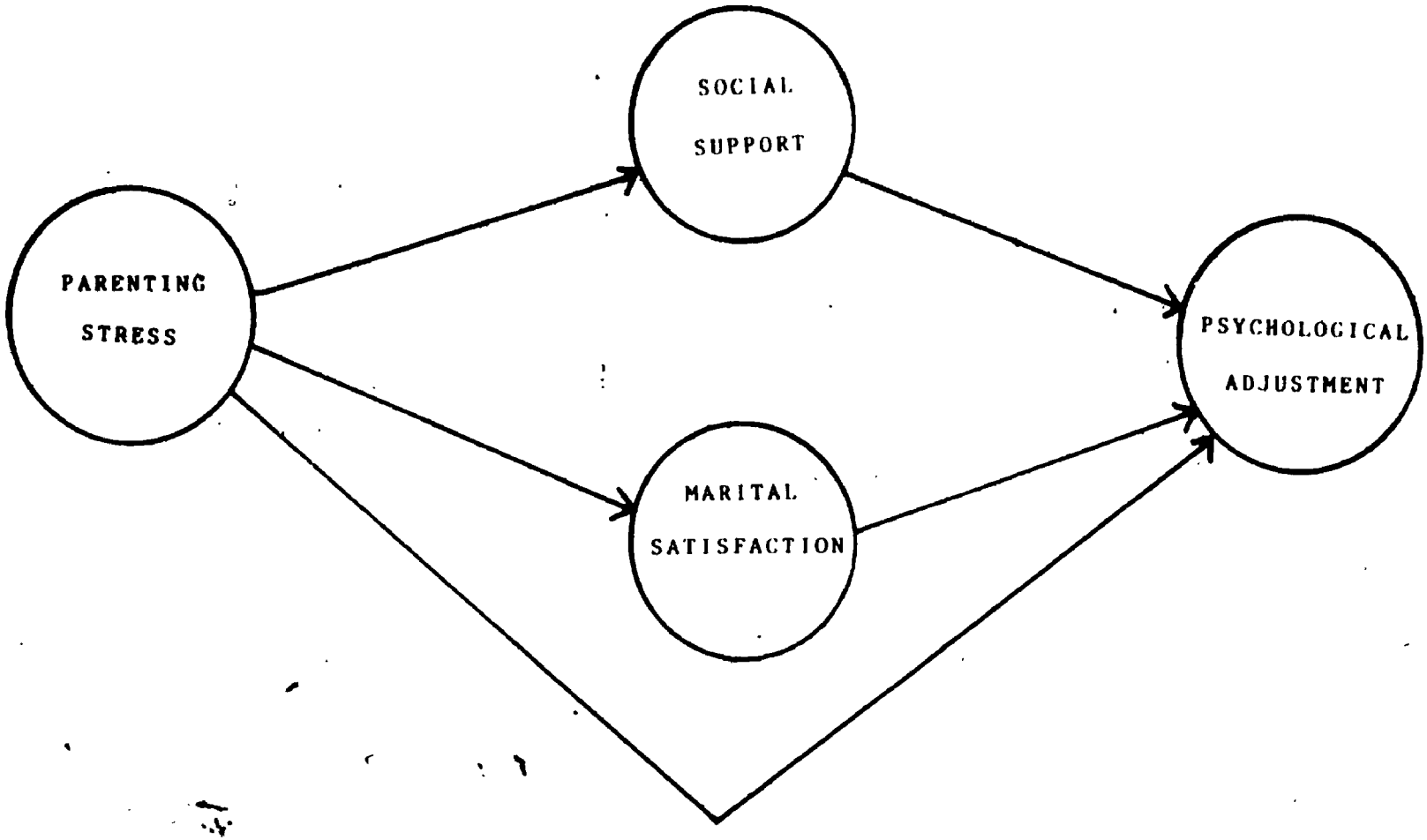


FIGURE 2. A COMBINED MEDIATOR MODEL

CHAPTER THREE

Method

Subjects

Ninety-six mothers of hearing impaired children between the ages of 2 and 5, residing in Ontario, participated in the study. According to a recent longitudinal study of young deaf children in the Province of Ontario (Musselman, Lindsay, & Wilson, 1984), this represents over half of the total provincial population of children in this age range. Mothers were recruited from a variety of educational programs serving hearing impaired children, including provincial schools for the deaf, hospital-based audiology programs, and school boards offering specialized classes. Attempts were made to ensure adequate representation of both urban and rural families.

Criteria for inclusion of the hearing impaired children were as follows: (a) a severe or profound prelingual hearing loss, defined as a loss of 70 db or greater across the speaking range (ANSI, 1969), (b) no major physical disabilities other than deafness (e.g., cerebral palsy), and (c) age between 24 and 71 months at the time of the interview.

Criteria for inclusion of mothers of hearing impaired children were two-fold. First, since each mother was asked to fill out paper-and-pencil questionnaires, basic reading abilities were required. Based on prior research with the

dependent measures (Abidin, 1983; Jackson, 1974), participants had to comprehend written material at a grade six level. Second, mothers who had an extensive history of psychiatric disturbance, defined as hospitalization for over six months, or who were currently in therapy for reasons unrelated to the child, were excluded from the study. Parents wishing to participate in the study were screened over the telephone to ensure that the inclusion criteria were met.

The control group was assembled using similar criteria. One hundred and eighteen mothers of normally hearing children between the ages of 2 and 5 participated in the research project. The control mothers were matched on the basis of age, socioeconomic status, educational level and marital status. These factors have been associated with both parenting skills and adaptation to stress (Meadow, 1980). Mothers in the control group were recruited through pediatricians, flyers placed in daycare centers, and ads in local newspapers. Similar screening criteria with regard to reading ability and psychiatric history were applied to the control group. Control mothers were also excluded if their children had substantial intellectual, psychiatric or medical difficulties (i.e., a diagnosed learning disability, current treatment for emotional disturbance or serious illness).

Procedure

School and agency representatives examined their files to determine which mothers fit the inclusion criteria for the study. Once the initial screening had been performed, prospective participants were notified of the research project in a letter mailed from the local school or hospital program. The letter briefly described the purpose of the study and the procedures. Mothers interested in participating in the research project were instructed to contact the appropriate teacher or therapist, or return a signed consent form to the investigator.

Prospective participants were then contacted by the researcher to explain the requirements of the study, the content of the dependent measures, and the procedures used to protect each participant's legal and ethical rights (e.g., confidentiality of information). In addition, a consent form outlining this information was signed by each mother at the beginning of the interview (see Appendix A).

Interview assessment. A 100-item structured interview was conducted in each mother's home by a trained interviewer (see Appendix A). The interview covered the following general areas:

(a) Background information: family composition; medical, psychiatric and hearing status of family members; socioeconomic and educational status;

(b) Medical and diagnostic history of the child: birth

history, diagnosis and age of onset of hearing loss;

(c) Mothers' involvement in educational programming: participation in school or auditory-verbal programs; frequency and type of educational/language activities carried out in the home;

(d) Communication: methods of communication used in the home, involvement in learning sign language or the auditory-verbal approach;

(e) Parenting issues: ratings of problems encountered in basic child-rearing activities (e.g., bedtime routines, safety, compliance with requests), methods of discipline and behavior management.

(f) Mothers' social support networks: assessment of frequency and helpfulness of contact with health care professionals and teachers; contacts with family, friends and community members.

A parenting stress scale (see Appendix B) was derived from the structured interview by obtaining ratings of stress, on a 5 point rating scale from "not at all stressful" to "extremely stressful", across a broad range of parenting issues (eg., learning activities, safety, reactions of family and friends).

During completion of the interview, mothers also completed questionnaires assessing perceptions of social support, levels of parenting stress, personality characteristics (e.g., endurance, affiliation) and psychological

distress. The interviewer remained in the home while the questionnaires were completed in order to clarify instructions or answer questions. If time did not permit completion of all questionnaires, a self-addressed stamped envelope was provided to facilitate the return of all instruments.

Before completion of the interview, the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was scored by the interviewer to facilitate identification of mothers who might be emotionally distressed. Any mother scoring 16 or above on this instrument was offered a phone number in her area where professional help could be obtained. Records were kept of all mothers who accepted referral numbers.

The total time for the interview was approximately 2 1/2 hours for the hearing impaired group and 1 1/2 hours for the control group. Mothers in the clinical sample were offered either a book on hearing impairment, Can't Your Child Hear (Freeman, Carbin & Boese, 1981) or $20 for their participation in the study. Mothers in the control group were paid $12 following the interview.

A summary of the research results was mailed to all of the participants (both clinical and control mothers), and to any agencies or school boards that recruited subjects or expressed an interest in the study.

Interviewer Training

The interviewer received a minimum of 20 hours training. Prior to collecting actual data, she conducted practice interviews with the principal investigator and two pilot subjects. The interviewer was instructed to be sensitive to the emotional state of the participant and to respect her right to refuse to answer questions. The procedures of the study and instructions for filling out the questionnaires were reviewed in detail.

Dependent Measures

Instruments assessing parenting stress, social support systems, personality characteristics and psychological adjustment were administered to all subjects.

Parenting stress. The Parenting Stress Index (PSI; Abidin, 1983) is a 126-item clinical and research questionnaire designed to identify parent-child systems under stress and to indicate the specific sources of stress. The PSI yields a total score, three domain scores and 15 subscale scores. The domain scores represent stresses related to child characteristics (Child Domain), parental characteristics (Parent Domain), and situational and demographic factors (Life Stress Scale). The Child Domain taps the child's adaptability, acceptability to the mother, demandingness, moodiness, distractability and degree to which the mother finds the child reinforcing. The Parent Domain is

made up of eight subscales reflecting maternal depression, restrictiveness of the maternal role, maternal competence, social isolation and physical health. The Life Stress Scale assesses situational stress related to family size and income, and number of stressful life events over the past twelve months.

The scale demonstrates good internal consistency, with alpha values ranging from .6 to .9 for the subtest and domain scores and .95 for the Total Stress score. Similarly, test-retest reliability values are acceptable, ranging from .7 to .9 for a three to four week interval and .5 to .85 for a one year interval (Abidin, 1983). The Parenting Stress Index has been used in over 23 research projects in the United States and Canada with a variety of normal and special parent-child populations including cerebral palsy, mental retardation, attention deficit disorder and premature infants. There is substantial evidence from these studies of both concurrent (Mash & Johnston, 1983) and discriminant validity (Greenberg, 1983). The author provides normative data from a large sample of clinic-referred and non-clinic families, allowing test scores to be reported as percentile or T score data.

A second measure of parenting stress was administered focusing on disability-specific stress. Rating scales were developed to assess five major areas of parenting responsibility: communication ability and selection of communication

mode (e.g., manual versus oral), daily routines (e.g., mealtimes, toileting), language activities, obtaining relevant services (e.g., educational, medical, speech), and development of peer and sibling relationships. Parents reported both the frequency of activities where applicable (e.g., number of medical appointments) and rated the stress level associated with each area of parenting on a five point scale. For the purposes of this study, stress was defined for mothers as something that "taxes your resources" or "is more than you can handle comfortably".

Finally, the Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978) was used to identify problem behaviors in the clinical and control groups and to assess their frequency of occurrence (see Appendix B). The ECBI yields two scores: a Problem Scale score specifying which behaviors, out of a possible 36, are problematic, and an Intensity Scale score, indicating how often these problems occur. Unlike most child behavior checklists that use 4 as a lower age limit, normative data are available on the ECBI for children ages 2-12. Clinical cut-off scores have been established, with a score of 11 as the cut-off on the Problem Scale and 127 as the cut-off on the Intensity Scale. Test-retest reliabilities were reported as .86 for the Intensity Score and .88 for the Problem Score. Internal consistency coefficients of .98 were obtained for both scales. Of particular interest for the current investi-

gation, a validity study comparing Intensity and Problem Scores for a conduct-problem, chronic illness, and control group yielded a significant effect for group membership. However, while the conduct problem group did obtain significantly higher scores on both scales, the chronic illness group did not differ from the control group on either number of problems or intensity (Robinson, Eyberg & Ross, 1980).

Social Support. Two dimensions of social support were assessed in this study: the size of mothers' support networks and their perceptions of satisfaction with these supportive relationships. The Norbeck Social Support Questionnaire (NSSQ; Norbeck, Lindsey & Carrieri, 1983) is a self-administered measure which asks subjects to list up to twenty-four social network members and rate them on the functional properties of social support such as affect, affirmation, and aid. These ratings reflect perceptions of the adequacy of the support system. Three network dimensions were also assessed, including size, stability and frequency of contact. In addition, the NSSQ asks about "recent losses" of network members and their support contribution. Test-retest reliabilities ranged from .85 to .92 and internal consistency coefficients were estimated to be .69 to .98. Information on both convergent and discriminant validity have been presented, and there is some indication that the NSSQ is free of social desirability bias.

A second social support measure, the Arizona Social Support Interview Schedule (ASSIS; Barrera, 1981; Barrera, Sandler & Ramsay, 1981), was also used to measure both network and perceived satisfaction aspects of social support. The ASSIS is administered in an interview format, and contains items related to six categories of support: material aid, physical assistance, intimate interaction, guidance, feedback and positive social interaction. It was designed to examine the "availability" of supports versus those which are actually utilized. It also addresses the issue of network members who may function as a source of stress, by including items which tap "conflicted" support. Test-retest reliability (over a two-day period) was .88 for total network size, .54 for conflicted network size, and .69 for support satisfaction. Limited validity data are available.

A third measure of perceived support, the Revised Kaplan Scale (Kaplan, 1977) was administered in its short form (Turner, Frankel & Levin, 1983). This instrument employs a unique response format (see Appendix B). Subjects read a series of "story-identification" vignettes which describe varying levels of support, and rate their similarity to these stories on a five-point scale. The internal consistency of the scale has been moderately high across several different populations (e.g., family volunteers, hearing-impaired adults, maladaptive parents) with alpha

coefficients ranging from .79 to .83 (Turner, 1981). Evidence for concurrent validity has been presented using other measures of perceived support (Turner, Frankel & Levin, 1983).

Personality characteristics. The Personality Research Form (PRF; Jackson, 1984) was used to assess the personality traits of Affiliation, Nurturance and Endurance. The PRF represents the application of developments in the areas of personality theory, personality assessment, and test theory to personality test construction and has undergone several revisions since its introduction in 1967 (Jackson, 1974, 1984). Each trait scale is composed of 16 items representing equal numbers of positively and negatively worded statements. The PRF scales were developed using a sequential strategy for item selection and were constructed to reduce problems of response biases such as social desirability responding.

Normative data on the PRF are available for college students, psychiatric patients, normal adolescents, and military samples. Internal consistency of the PRF has been assessed in several studies, with individual scale estimates of reliability ranging from .57 to .91 for a college sample. Test-retest reliability over a period of two weeks ranged from .85 to .96 with a median of .93. Numerous construct validity studies have been undertaken by a variety of authors. There is evidence of high correlations between

PRF scores, peer ratings, judges trait ratings and self ratings (Kusyszyn & Jackson, 1968). In addition, convergence has been demonstrated with the Jackson Personality Inventory (JPI; Jackson, 1976), The California Psychological Inventory, and The Bentler Psychological Inventory.

A subscale of the JPI was used to assess Social Participation, a trait which correlates positively with the Affiliation scale from the PRF. The JPI is comprised of 320 true-false items, divided into sixteen 20-item scales. Support for both convergent and discriminant validity of the JPI scales with self- and peer ratings have been provided by Jackson (1977). Adequate reliability data using college samples has also been obtained (Jackson, 1977).

Additional items measuring Endurance were developed for use in this study (see Appendix B). Items related to the child's disability and believed to require endurance on the mother's part were given to the clinical sample, whereas Endurance items neutral with respect to medical content were administered to the control group. Attempts were made to develop ad-hoc items which would closely represent the construct of endurance as measured by the PRF.

Psychological Distress. The Center for Epidemiological Studies Depr ssion Scale (CES-D) was used to assess mothers' level of depressive affect (see Appendix B). The CES-D is a twenty-item scale designed to measure current levels of depressive symptoms and mood in the general population

(Radloff, 1977). On a four-point scale ranging from "rarely or none of the time" to "most or all of the time" respondents are asked to indicate how often they have experienced each of the symptoms over the past week. Scores range from 0 to 60 with higher scores indicating greater severity of depressive affect. The internal reliability of the instrument appears good. Several field studies have reported internal consistencies (Cronbach's alpha) ranging from .84 to .90 (e.g., Turner et al., 1983). Discriminant validity both between groups (i.e., general population and psychiatric in-patient) and among severity levels has also been demonstrated. In addition, there is some suggestion of convergent validity with other measures of depression (Radloff, 1977).

A second measure of psychological adjustment, the SCL-90-R (Derogatis, 1977; Derogatis, Lipman & Covi, 1973) was used to assess symptoms of Somatization, Interpersonal Sensitivity, Depression, Anxiety and Hostility. The SCL-90-R was derived from the Hopkins Symptom Checklist and is a self-report symptom inventory that yields 3 global indices of distress and 9 primary symptom dimensions. Symptoms are rated on a 5-point scale (0-4) ranging from "not at all" to "extremely". The SCL-90-R has been utilized with a broad range of populations, including medical patients, university clients and community samples. Normative data are available for both non-patient, psychi-

atric outpatient and adolescent outpatient groups, with separate norms available for males and females. Internal consistency coefficients across the symptom scales ranged from .77 to .90, and test-retest reliabilities over a one-week period ranged from .78 to .90. Several validity studies have been undertaken, with substantial evidence of convergent, discriminant and construct validity (Derogatis, Rickels & Rock, 1976; Derogatis & Cleary, 1977).

Marital satisfaction. The Dyadic Adjustment Scale (DAS; Spanier, 1976) was used to assess both spousal support and marital adjustment (see Appendix B. The DAS is a 32-item questionnaire which yields four subscale scores, Consensus, Satisfaction, Cohesion, Affectional Expression and an overall adjustment score. Subscales are composed of between 4 and 13 items and are rated on a 5-7 point scale. Higher scores on the DAS indicate better adjustment and greater satisfaction. Normative data are available for married and divorced samples, based on groups of 218 and 94, respectively. Coefficient alphas ranged from .86 to .96, suggesting that the DAS is quite reliable, Construct validity was assessed using the Locke-Wallace Marital Adjustment Scale. Correlations between the two scales was .86 for married respondents and .88 for divorced respondents.

CHAPTER FOUR

Results

Demographic Characteristics of the Samples

Mothers in the hearing impaired and control groups were matched on age, marital status, years of education, family income, and age of the child. T-tests on the continuous demographic variables and chi-square tests on the categorical variables revealed no significant differences between the groups on any of the matching variables (see Table 1). Overall, the majority of the mothers in both samples were married (76%), had completed high school, had at least one child at home, and were in a middle-income bracket. The mean age of the child identified for the study was approximately four years; a slightly higher number of male children appeared in the hearing impaired group, but this difference was not statistically significant, $\chi^2(1) = 2.96$, $p > .05$.

Additional chi-square tests were performed to determine whether or not the presence of a handicapped child influenced the mother's employment status, either following the birth of the child or at the time of the interview. No significant differences in current employment status, $\chi^2(2) = .078$, $p > .05$., prior employment status, $\chi^2(6) = .692$, $p > .05$, or reasons for leaving work, $\chi^2(6) = 1.019$, $p > .05$, were found between the groups. Mothers in the hearing impaired group were just as likely to continue working after

Table 1
Demographic Characteristics of the Clinical and Control Groups

	Mothers of hearing impaired children		Mothers of hearing children		
Variable	Mean	SD	Mean	SD	p
Mother's age	30.88	5.12	29.94	4.32	n.s.
Yrs. of education	13.18	2.57	13.78	2.56	n.s.
Number of other children	1.23	.90	1.05	.89	n.s.
Child's age (in months)	48.61	14.36	46.88	13.26	n.s.
Spouse's age	34.07	5.33	32.47	4.62	*
Spouse's yrs. of education	13.57	3.23	14.11	3.08	n.s.

Note: 50% of the clinical group had a family income between $20,000 and 49,000; 46.5% of the control group had a family income of $20,000-49,000.

The percentage of male children and female children in the clinical group was 60% and 40%, respectively. In the control group, the percentage of male and female children was 47% and 53%, respectively.

* $p < .05$
** $p < .01$

the birth of their child as mothers in the control group. Approximately 90% of the mothers in both groups were employed full-time.

Demographic information was also obtained on the mother's spouse (see Table 1). No differences between the groups were found on the spouses' educational background, employment status, occupation or frequency of absence from the home. However, a significant difference was found on the variable of age, with husbands in the hearing impaired group being slightly older than controls.

Characteristics of the hearing impaired children. Based upon a longitudinal study of 80% of the hearing impaired preschoolers in Ontario (Husselman, Lindsay & Wilson, 1985), the sample of hearing impaired children employed in the current study was considered representative of the population of the Province of Ontario. The two samples were found to be similar on the following characteristics: mean age of child, age at diagnosis, sex of the child and incidence of prelingual deafness (see Table 2). Slight differences were noted for cause of deafness, with lower percentages of hereditary deafness found in the current study (5.2% compared to 10% for the Husselman et al., 1985 study). This is most likely due to the exclusion of deaf parents in this study, which predisposes children to genetically-based deafness.

Table 2

Characteristics of the Hearing Impaired Children

Variable	n	Mean	SD
Age (in months)	96	48.6	8.62
Age at Diagnosis (in months)	96	19.04	10.87
	n	%	
Sex: male	57	59.4	
	39	40.6	
Prelingually deaf	92	96	
Deaf at Birth	64	67	
Cause of deafness:			
heredity	5	5.2	
rubella	4	4.2	
prematurity	1	1.0	
birth complications	6	6.3	
meningitis	10	10.4	
unknown	51	53.1	
other	19	19.8	
Hearing loss:			
severe	42	43.7	
profound	54	56.3	

The largest incidence category in the present study was "unknown" (53%) which is larger than the 36% quoted in many studies (Moores, 1978). Cause of deafness in this study was based exclusively on mothers' reports, without reference to medical records, and may suggest that mothers are lacking in information related to the etiology of their child's condition.

The current sample differed from the Musselman et al. population in two primary ways: exclusion of hearing impaired children with deaf parents and exclusion of children with other physical or medical handicaps such as cerebral palsy or blindness. This may account for the slightly lower incidence of profound hearing loss (i.e., 70 db or greater using pure tone averages) found in this study as compared to that of Musselman et al. (1985).

Finally, 100% of the children in the current study wore a hearing aid, acquiring their first aids at a mean age of 20 months. Hearing aid use was reported to be high in this study, with aids being worn an average of 89% of the child's waking hours. These statistics are nearly identical to those reported by the Musselman group.

Statistical approach

In order to increase the reliability and validity of the latent (unobserved) variables examined in this study, multiple indicators of each variable were employed. This

approach has been recommended both by researchers testing third variables in the stress-illness area (Mitchell, Billings & Moss, 1982) and by statisticians in the social sciences (Baron & Kenny, 1986). Social support, for example, is a multidimensional construct encompassing functions such as availability of a confidant, provision of information, and confirmation of self-worth (Cohen & Wills, 1985; Gottlieb, 1981). It is unlikely that a single indicator could adequately measure the complexity of this construct. Furthermore, the assessment of internal, psychological variables such as emotional distress are inevitably subject to measurement error, which may lead to overestimates or underestimates of the latent variables (Kenny & Judd, 1981).

However, the use of multiple indicators for each variable may also pose problems for statistical analyses, due to the necessity for multiple comparisons which lead to inflated type I error rate and problems of multicollinearity among the variables (Asher, 1983; Skinner, 1978). One possible solution to these problems is the utilization of factor analysis to reduce the number of independent and dependent variables, followed by use of the derived factor scores in subsequent analyses. Depending upon the rotation selected, this approach may also have the advantage of isolating different aspects of a multidimensional construct, and transforming predictors to orthogonal variables to

permit appraisal of independent effects (Tabachnik & Fidell, 1983).

The plan for the presentation of the data analyses is as follows. First, the factor analyses of the independent and dependent measures will be described, followed by evaluations of group differences on the variables. Next, the moderator and mediator models will be described and tested. Finally, tests of the models will be conducted by group to assess the relative contribution of the variables in each sample.

Factor analyses. In the current study, the four following sets of variables were subjected to principal-components factor analyses: parenting stress, social support, marital satisfaction, and psychological distress. Factor structures were then rotated to a varimax solution (Kim, 1975).

Following identification of the principal factors, using both the Scree test (Catell, 1966) and "eigenvalue one" criterion (Guttman, 1954), factor scores were generated for each subject based upon the rotated factor loading. The Anderson-Rubin method of deriving factor scores was employed to obtain orthogonal scores (Harris, 1967). These factor scores were used in place of raw scores for all subsequent analyses except the tests of group differences on the independent and dependent measures. The personality

measures of Affiliation, Nurturance and Endurance were not factor analyzed across the groups due to the absence of multiple indicators for these variables. Factor analyses were performed on the personality variables for between-group comparisons.

Two sets of factor scores were derived: one set on the clinical and control groups for analyses requiring group comparisons (e.g., analyses of variance) and one set collapsed across the groups for tests of the overall relationships among the variables (eg., tests of the model). It was hypothesized that the process of adjustment to stress might differ between the groups, necessitating the two sets of factor scores. However, the factor structures obtained on both sets of factor analyses were similar on several dimensions: number of factors extracted, ordering of the measured variables and size of the factor loadings (see the correlation matrix, Table 3). Due to the similarity of the sets of solutions, the factor analyses for the combined sample only will be described below.

Parenting stress. A factor analysis was performed on the nine scales of the Parenting Stress Index (PSI), the Intensity Scale and Problem Score of the Eyberg Child Behavior Inventory (ECBI), and the Routine Stress and Parenting Stress scales derived from the structured interview. A two-factor solution was obtained accounting for 57%

Table 3
Correlations Between Subjects' Overall and Group-Specific Factor Scores

	By group I	II	III	IV	V	VI	VII	VIII	IX	X
Combined samples										
Child Stressors (I)	.86***									
Maternal Stressors (II)		.98***								
Marital Satisfaction (III)			.98***							
Network Support (IV)				.96***						
Perceived Support (V)					.99***					
Need for Support (VI)						.98***				
Psychological Distress (VII)							.96***			
Nurturance (VIII)								.97***		
Endurance (IX)									.95***	
Affiliation (X)										.99***

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

of the variance in the measured variables (see Table 4).

Factor I was labelled "CHILD STRESSORS" and was defined by high loadings on measures of daily routine stress, child behavior problems, and negative characteristics of the child. The only scale related to maternal stressors which loaded on this factor was Restriction of Role, which could be interpreted as the result of high care-giving demands and difficulties. Factor II, labelled "MATERNAL STRESSORS", was described by high positive loadings on scales measuring the mother's attitude toward her parental role and her sense of satisfaction with her child. High loadings were obtained on sense of competence, feelings of attachment toward the child, and perceptions that the child is reinforcing for the mother.

Marital satisfaction. Exploratory factor analyses were performed on the measures of marital satisfaction to see if they formed a proxy measure for either spousal support or psychological distress. In both instances, the four Dyadic Adjustment Scales (DAS) loaded on a separate factor and showed no tendency to combine with the other two constructs. Marital satisfaction, therefore, was factor analyzed and entered separately into the model. One large factor was extracted, labelled "MARITAL SATISFACTION", which accounted for 92.6% of the variance.

Table 4
Rotated Factor Solution for Parenting Stress Measures

	Varimax rotated loadings	
	Factor I[a]	Factor II[b]
Parenting Stress	.783	.179
PSI Demanding	.750	.376
PSI Hyperactivity-Distractability	.746	.281
PSI Adaptability	.730	.356
Eyberg Intensity Scale	.701	.270
Routine Stress	.680	-.077
PSI Restriction of Role	.651	.322
Eyberg Problem Score	.584	.230
PSI Reinforces Parent	.047	.772
PSI Acceptability of Child	.246	.736
PSI Attachment	.160	.725
PSI Sense of Competence	.395	.629
PSI Child Mood	.404	.539
Sum of squared loadings	4.390	2.966
% of the common variance	34%	23%

Note: PSI = Parenting Stress Index; higher subscale scores indicate greater distress

[a] Factor I = CHILD STRESSORS

[b] Factor II = MATERNAL STRESSORS

Social Support. Three scales from the Norbeck Social Support Questionnaire (NSSQ), four scales from the Arizona Social Support Inventory (ASSIS) and the Revised Kaplan total score were factor analyzed using the principal components method. The scales represented both network, perceived support and functional (eg., material aid) dimensions of the construct.

Three factors, accounting for 70% of the variance, were retained from the analysis and rotated to simple structure using a varimax rotation (see Table 5). Consistent with both theoretical and empirical formulations of social support, the scales loaded on two broad dimensions of support -- network aspects of support and perceptions of emotional support (Cohen & Wills, 1985; Procidano & Heller, 1983).

Factor I was labelled "NETWORK SUPPORT" and was defined by high loadings on the network dimensions of size, frequency of contact and duration of relationships. Factor II, named "PERCEIVED SUPPORT", was characterized by both functional aspects of support from the NSSQ (eg., provision of money or tangible aid) and emotional components of support from the NSSQ and the Kaplan Vignettes (eg., feeling loved, admired, cared for). This factor was also characterized by negative loadings on the Conflicted Support scale from the ASSIS. Factor III, labelled "NEED FOR SUPPORT", was more difficult to define since high positive loadings on

Table 5
Rotated Factor Solution for
Measures of Social Support

	Varimax rotated loadings		
	Factor I[a]	Factor II[b]	Factor III[c]
Number in Network (NSSQ)	.945	-.025	-.000
Total Network (NSSQ)	.944	.014	.003
Available Network Size (ASSIS)	.718	.050	.210
Average Functional Support (NSSQ)	-.184	.933	.115
Kaplan Vignettes	.356	.770	-.015
Need for Support (ASSIS)	-.083	-.051	.829
Support Satisfaction (ASSIS)	.180	.305	.722
Conflicted Support (ASSIS)	.294	-.380	.462
Sum of squares loadings	2.504	1.235	1.446
% of the common variance	32%	16%	18%

[a]Factor I = NETWORK SUPPORT
[b]Factor II = PERCEIVED SUPPORT
[c]Factor III = NEED FOR SUPPORT

the ASSIS Need for Support and Satisfaction scales clustered with the presence of Conflicted Support. Since all three of the measures loading on this factor are subscales of the same inventory, common method variance related to scaling or wording of the items might have contributed to common factor variance, as well as the effects of the substantive meaning of the construct.

Psychological distress. Four scales from the SCL-90, Somatization, Interpersonal Sensitivity, Depression, Anxiety and Hostility, and the sum score for the Center for Epidemiological Studies-Depression scale were entered into the factor analysis. One large factor with simple structure emerged accounting for 68% of the variance in the dependent measures (see Table 6). This factor was labelled "PSYCHOLOGICAL DISTRESS" and was defined by highest loadings on depression and anxiety.

Tests of Major Hypotheses: Hypothesis 1

Significant group differences were expected on the measures of parenting stress, marital satisfaction and psychological adjustment, with mothers of hearing impaired children predicted to report higher levels of stress, less marital satisfaction and poorer adjustment than control mothers. In order to facilitate clinical interpretation of the differences between groups, the scale scores rather than

Table 6
Factor Solution for Measures of Psychological Distress

Varimax rotated loadings	
	Factor I[a]
Depression (SCL-90)	.916
Anxiety (SCL-90)	.899
Interpersonal Sensitivity (SCL-90)	.832
CES-D	.818
Hostility (SCL-90)	.752
Somatization (SCL-90)	.699
Sum of squared loadings	4.063
% of common variance	68%

[a]Factor I = PSYCHOLOGICAL DISTRESS

factor scores were used for the initial analyses.

Parenting stress. Measures of parenting stress included scales from the Parenting Stress Index (PSI), the Problem Scale and Intensity Scale from the Eyberg Child Behavior Inventory (ECBI), and the Routine Stress and Parenting Stress Scales (PSTRESS) derived from the structured interview. The Parent Health, Relationship with Spouse, Social Isolation and Depression Scales from the PSI were excluded from analyses of parenting stress because of their potential confounding with the dependent measures (eg., depression).

Because multiple indicators of parenting stress were administered, group differences were evaluated using a multivariate analysis of variance (MANOVA). Significant group differences were obtained on the overall MANOVA (Hotellings $T^2 = 2.73$, F (1,184) = 17.34, $p < .00001$). Follow-up univariate analyses of variance revealed significant mean differences on eleven of the thirteen measures (see Table 7). Mothers in the clinical group rated their children as more hyperactive, demanding, moody, and less adaptable than did mothers in the control group. They also had more problems with daily routines and rated parenting activities as more stressful than controls. It is interesting to note that while the intensity of child behavior problems was greater in the hearing impaired group (on the

Table 7
Means, Standard Deviations and Univariate ANOVAS on Parenting Stress Measures

Variable	Clinical Group Mean	Clinical Group SD	Control Group Mean	Control Group SD	F	Sig of F
Parenting Stress Index:						
1. Adaptability	29.82	5.47	24.53	4.56	50.65	****
2. Acceptability	14.85	3.72	12.75	2.95	59.51	****
3. Demanding	25.53	5.69	18.81	4.12	21.19	***
4. Child Mood	11.30	3.24	10.17	2.65	100.19	****
5. Distractability-Hyperactivity	27.57	5.48	22.48	3.96	7.94	**
6. Reinforces Parent	10.48	3.12	10.14	2.75	.75	n.s.
7. Attachment	13.75	3.43	12.17	2.97	12.99	***
8. Restriction of Role	21.61	5.47	18.00	4.94	25.72	***
9. Sense of Competence	31.63	5.79	28.44	6.05	15.35	***
Routine Stress (mean # of problems)	11.23	4.09	10.04	3.38	5.48	*
Parenting Stress (mean stress ratings)	2.54	.67	1.71	.58	136.87	****
Eyberg Child Behavior Inventory						
Intensity Scale	116.61	24.08	104.86	22.12	13.20	***
Problem Scale	10.47	6.86	8.98	5.82	2.84	n.s.

* $p < .05$
** $p < .01$
*** $p < .001$
**** $p < .0001$

ECBI), the actual number of problems endorsed did not substantially differ between the groups. Mothers in the hearing impaired group also rated their children similarly to controls on the Reinforces Parent Scale, a surprising result given the high number of parenting difficulties which were reported.

Significant differences were also found on the Child Domain Score of the PSI, t (212) = 8.45, $p < .0001$. Mothers in the hearing impaired group scored 119.57, at the 90th percentile, whereas mothers in the control group scored 98.89, at the 50th percentile (see Table 8). In addition, comparisons of the mean scale scores of the hearing impaired mothers with the norm group (Abidin, 1983), revealed that five out of the six Child Domain subscales were above the clinical cut-off (i.e., 70th percentile rank). These results suggested that mothers in the clinical group were experiencing considerable stress in managing their children. Scores on the ECBI Intensity Scale for the hearing impaired group did not reach the clinical cut-off, although the Problem Score of 10.47 was close to the cut-off score of 11.

In contrast, the PSI Life Stress scale, which measures the impact of stressful life events, did not differentiate between the groups. Ironically, this is the type of measure most widely used in stress research. Although not statistically significant, the mothers in the control group reported

Parenting Stress Index

Profile Sheet and Norms—Form 6

R. R. Abidin—University of Virginia

Parents Name _____ Parent's Sex _____ Parents Date of Birth _____

Child's Name _____ Child's Sex _____ Child's Date of Birth _____ Date _____

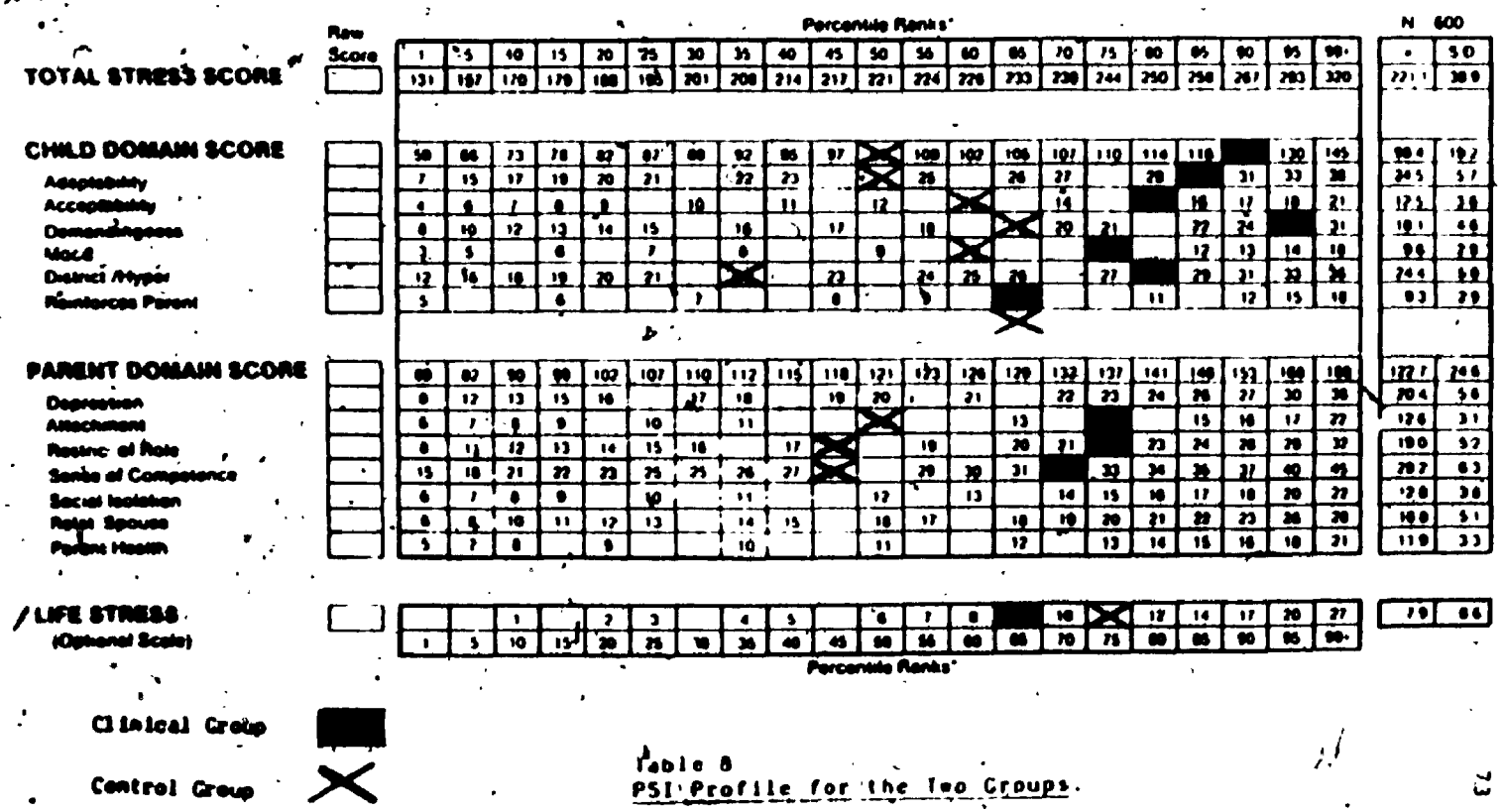


Table 8
PSI Profile for the Two Groups.

*Abidin 1983

a greater number of stressful life events (75th percentile rank) than the mothers in the clinical group (60th percentile).

Specific parenting issues. As reported earlier, significant differences between the two groups were found on the Parenting Stress Scale derived from the structured interview. This scale was composed of 20 items relating to general and disability-specific sources of parenting stress. Mothers rated the stressfulness of these activities on a 5-point rating scale; mean ratings were calculated for each group across the twenty items. Follow-up t-tests indicated that mothers in the hearing impaired group rated 18 of the 20 items significantly higher than mothers in the comparison group. Only stress related to toilet training and the child's relationships with siblings failed to differentiate between the groups.

In addition, the rank ordering of the parenting stressors was substantially different between the groups (see Table 9). Generally, mothers in the clinical group ranked problems related to the hearing handicap as most stressful. The top three problems for this group were: 1) behavior problems occurring during language training sessions, 2) behavior problems at home, and 3) stress of communicating with the deaf child. In contrast, while the comparison group also ranked behavior problems at home as the number

Table 9
Rankings of Parenting Issues for Clinical Group

Rank	Variable	Clinical Group Mean[a]	Clinical Group SD	Control Group Mean	Control Group SD	p[b]
1	Behavior problems during language lessons	2.96	1.16	1.79	.76	***
2	Behavior problems at home	2.90	1.05	2.18	.80	***
3	Stress of communicating	2.89	1.05	1.60	.72	***
4	Stress of mother teaching	2.77	1.23	1.36	.56	***
5	Educational program	2.72	1.40	1.24	.68	***
6	Crossing street	2.71	1.46	1.51	.84	***
7	Behavior problems away from home	2.69	1.05	1.98	.84	***
8	Safety	2.60	1.29	1.47	.77	***

[a] Mean stress ratings on 5-point scale.
[b] Based on follow-up t-tests.

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

one parenting issue, their second and third problems, getting along with siblings and toilet training, represented more "typical" parenting problems.

Marital satisfaction. The Dyadic Adjustment Scale (DAS) was used to assess marital satisfaction in the two groups. The four subscales Consensus, Satisfaction, Cohesion, Affectional Expression and the overall sum score were tested using a MANOVA. The overall MANOVA was significant, Hotellings $T^2 = .08$, F (1,184) = 2.61, $p < .03$ for the two groups. Follow-up univariate F-tests revealed significant differences between the groups on all subscales and the sum score (see Table 10). Mothers in the hearing impaired group scored substantially lower on all indices of marital satisfaction than control mothers.

Psychological adjustment. The Center for Epidemiological Studies Depression Scale (CES-D) and five subscales on the SCL-90, Somatization, Interpersonal Sensitivity, Depression, Anxiety, and Hostility were used to assess psychological adjustment. Since these scales collectively represented different types of emotional distress, with higher scores indicating greater levels of disturbance, this variable was termed "psychological distress". Significant group differences were expected on these variables, with mothers in the clinical group predicted to score higher on

Table 10
Means, Standard Deviations and Univariate ANOVAS on Marital Satisfaction

	Clinical Group		Control Group			
Variable	Mean	SD	Mean	SD	F	Sig of F
Dyadic Adjustment Scale:						
Dyadic Consensus	46.51	9.76	50.46	6.24	10.26	**
Affectional Expression	8.69	2.02	9.49	1.79	7.44	**
Dyadic Satisfaction	36.11	8.21	38.65	5.56	5.74	*
Dyadic Cohesion	13.94	5.04	15.49	3.53	5.55	*
Sum Score	105.27	21.87	114.09	14.38	9.98	**

* $p < .05$
** $p < .01$

all six scales.

A MANOVA was performed on the psychological distress variables, Hotellings T^2 = 2.73, F (1,184) = 17.34, p < .0001, revealing significant differences between the two groups. Follow-up univariate F-tests showed substantial differences between the groups on five of the six measures (see Table 11). Mothers in the hearing impaired group were significantly more depressed, interpersonally sensitive, anxious, and hostile than controls. Only the Somatization Scale failed to differentiate between the two groups.

A comparison of the mean scores for the hearing impaired sample and the SCL-90 norms suggested that the clinical sample in the current study obtained scores ranging one-half to two standard deviations above the non-patient norm group, with the Depression and Hostility scores showing the highest elevation.

Summary. Considerable support was obtained for Hypothesis 1, which predicted differences between the groups on parenting stress, marital satisfaction and psychological distress. A multivariate analysis of variance revealed substantial and consistent group differences. Mothers of hearing impaired children reported more intense child behavior problems, more negative child characteristics (e.g., demanding, moody), and fewer feelings of maternal competence and attachment. These mothers also rated their

Table 11
Means, Standard Deviations and Univariate ANOVAS
on Measures of Psychological Distress

	Clinical Group		Control Group			
Variable	Mean	SD	Mean	SD	F	Sig of F
SCL-90:						
Somatization	.55	.55	.50	.48	.51	n.s.
Interpersonal Sensitivity	.77	.61	.60	.51	5.06	*
Depression	1.06	.69	.84	.62	25.56	***
Anxiety	.72	.71	.46	.44	11.18	**
Hostility	.94	.73	.71	.58	6.54	*
CES-D	14.77	10.96	10.39	8.44	11.01	**

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

marital relationships as less satisfying, particularly in the area of dyadic agreement. Finally, they evidenced significantly more symptoms of depression, anxiety and anger than mothers in the control group.

Analyses of variance on the factor scores derived from the factor analyses reported above replicated the MANOVA results. Significant group differences were obtained on the following factors: CHILD STRESSORS, MATERNAL STRESSORS, MARITAL SATISFACTION, and PSYCHOLOGICAL DISTRESS (see Table 12).

Hypothesis 2

Significant group differences were predicted on measures of social support, for both network and perceived support dimensions. Mothers of hearing impaired children were expected to be more socially isolated, with fewer members in their support networks and lower ratings of satisfaction with their relationships, than mothers of hearing children.

Two measures of network support, the Total Network Scale from the Norbeck Social Support Questionnaire (NSSQ) and the Available Network Scale from the Arizona Social Support Interview (ASSIS) were used to evaluate mothers' support networks. The Total Network Scale is a composite score which assesses several network properties including size, frequency of contact, and duration of the relation-

Table 12
Analyses of Variance on the Factor Scores for: Parenting Stress, Marital Satisfaction and Psychological Distress

Factor	df	Mean Squares	F Ratio	Sig of F
CHILD STRESSORS	1,203	45.36	57.09	****
MATERNAL STRESSORS	1,203	4.56	4.68	*
MARITAL SATISFACTION	1,212	8.53	8.85	**
PSYCHOLOGICAL DISTRESS	1,212	12.24	12.93	***

* $p < .05$
** $p < .01$
*** $p < .001$
**** $p < .0001$

ship. The Available Network Scale from the ASSIS is a straight count of the number of people available to the mother.

Perceived emotional support was measured by the Revised Kaplan, three scales of functional/emotional support from the NSSQ and three scales from the ASSIS tapping satisfaction, need for support and the presence of conflicted support.

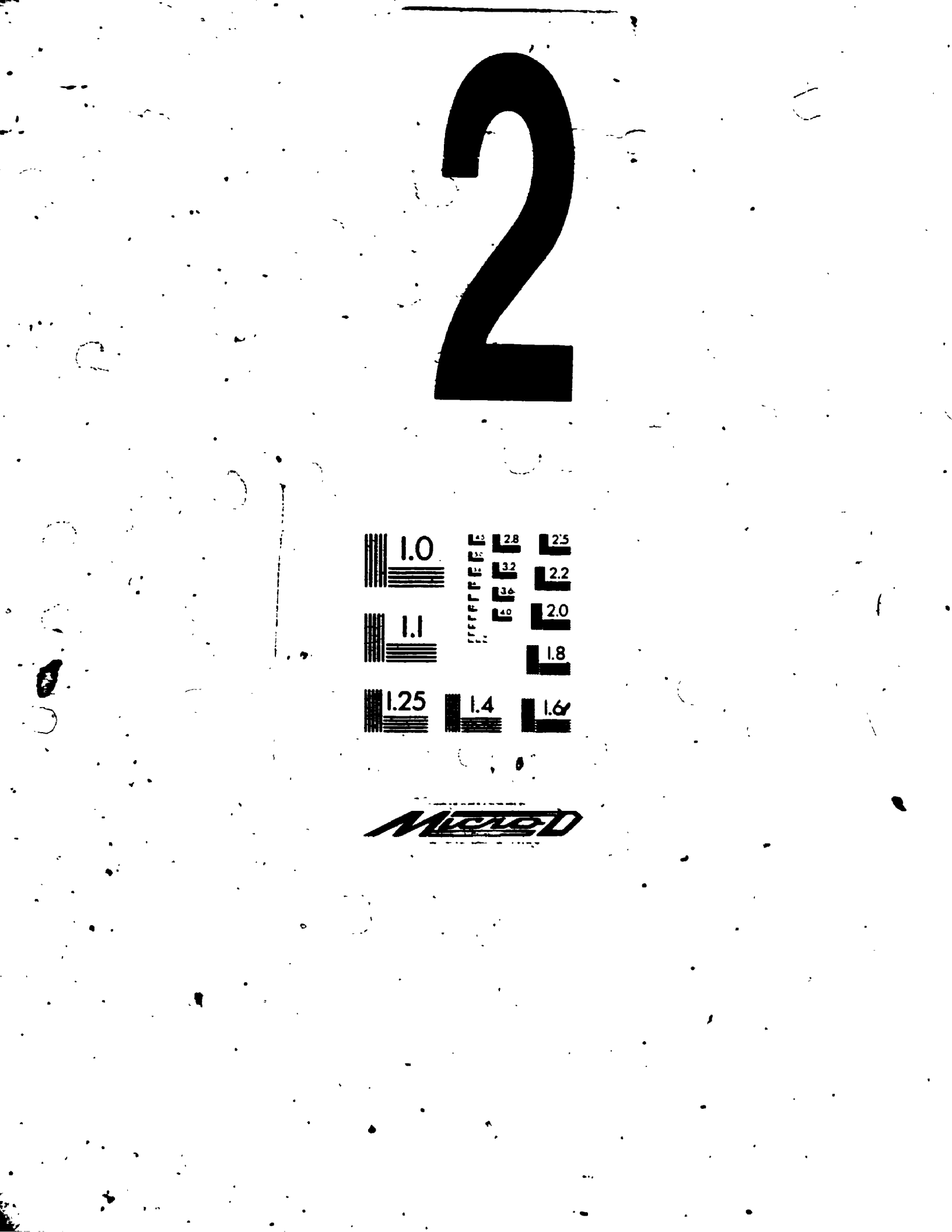
The multivariate analysis of variance was significant, Hotellings $T^2 = .573$, F (1,183) = 3.49, $p < .0001$. Follow-up univariate F-tests revealed substantial differences between the groups on measures of network support (see Table 13). Mothers in the hearing impaired group had smaller networks and less frequent contact with supporters. Further inspection of the individual scales showed that mothers of hearing impaired children had significantly fewer family members, relatives and friends in their networks compared to control mothers, and also had less frequent contact with these individuals. This supports the notion that mothers of handicapped children are socially isolated and perhaps somewhat stigmatized by their child's condition.

In contrast, mixed results were obtained for the measures of perceived functional support: Significant differences were found for the Affect and Affirm scales of the NSSQ, which rated feelings of being loved and admired and assessed the availability of a confidant. Hearing

Table 13 -
Means, Standard Deviations and Univariate ANOVAS on Measures of Social Support

	Clinical Group		Control Group			
Variable	Mean	SD	Mean	SD	F	Sig of F
NSSQ:						
Total Network Score	85.17	41.67	105.91	49.67	10.73	**
Affect	58.94	29.89	72.33	36.96	8.21	**
Affirm	53.54	28.47	65.90	33.30	8.29	**
Aid	45.99	25.40	51.68	26.04	2.58	n.s.
Revised Kaplan Scale	24.27	5.74	24.84	5.63	.26	n.s.
ASSIS:						
Available Network	9.78	4.38	11.32	4.78	5.93	*
Satisfaction	34.20	5.95	34.10	5.81	.01	n.s.
Need for Support	20.61	4.91	19.78	4.19	1.80	n.s.
Conflicted Support	2.25	1.85	2.80	2.36	3.42	n.s.

* $p < .05$
** $p < .01$


2
1.0
1.1
1.25
1.4
1.6
2.8
3.2
3.6
4.0
2.5
2.2
2.0
1.8
MicroD

impaired mothers scored substantially lower on these measures than controls. However, no significant group differences were found for the Kaplan Vignettes, the Aid scale from the NSSQ, and the Satisfaction and Need for Support scales from the ASSIS. Mothers of hearing impaired children were similar to control mothers in their ratings of satisfaction with support, their ability to obtain financial or other types of assistance and their need for supportive relationships. The discrepancy in the findings highlights the multidimensional nature of social support and the need to identify more specifically how the various components of support relate to stressors and outcome.

Summary. Partial support was obtained for Hypothesis 2. Mothers in the clinical group had substantially smaller support networks, particularly in the family, relatives and friends categories. It is important to note, however, that they had a significantly larger number of members in the Health Care Provider category than control mothers, which included audiologists, speech teachers, and home-visiting program coordinators. These network members were involved with the mothers as a direct result of the child's disability.

Partial confirmation was obtained for the prediction that clinical mothers would rate their perceptions of emotional support substantially lower than control mothers.

However, this difference was found for only two of the six functional-type measures; the clinical group ratings of an available confidant and feelings of being loved and respected were below those of the control group.

Analyses of variance on the factor scores derived from the factors NETWORK SUPPORT, PERCEIVED SUPPORT, and NEED FOR SUPPORT confirmed group differences for NETWORK SUPPORT. The other two factors, PERCEIVED SUPPORT and NEED FOR SUPPORT did not differ substantially between the groups, indicating that although two individual scales yielded significant differences, a strong, reliable difference was not present (see Table 14).

Hypothesis 3

Prior to testing the two competing models of adjustment to parenting stress, multiple regression analyses were conducted using "dummy coding" to assess the effects of group membership (Lewis-Beck, 1980). Significant differences in the relationships among the variables would indicate that the models should be tested separately for each group. On the other hand, if group membership did not contribute significantly to the regression analyses, then collapsing across the hearing impaired and control groups would be justified and result in increased statistical power (Cohen & Cohen, 1983).

A series of six multiple regression analyses were

Table 14
Analyses of Variance on the Factor Scores for Social Support

Factor	df	Mean Squares	F Ratio	Sig of F
NETWORK SUPPORT	1,198	10.51	10.89	**
PERCEIVED SUPPORTS	1,198	1.68	1.62	n.s.
NEED FOR SUPPORT	1.198	.66	.64	n.s.

* $p < .05$
** $p < .01$

conducted to assess the presence of significant interactions between the grouping variable and the factor scores for parenting stress, social support and marital satisfaction. None of the two-way or three-way interactions (eg., Group X PERCEIVED SUPPORT, Group X CHILD STRESSORS X PERCEIVED SUPPORT) were significant. These results suggested that group membership had no influence on the effects of the independent variables on the dependent variable. Therefore, the two samples were collapsed in subsequent tests of the models.

Hypothesis 3a: The moderator ("Buffer") Model. Model 1 predicted that social support and personality variables would "buffer" psychological adjustment at certain levels of stress. Four variables were expected to interact with parenting stress: perceived emotional support, endurance, nurturance and marital satisfaction. To test the moderating effects of these variables, multiple regression analyses were conducted using the SPSS^x forced entry procedure (SPSS^x User's Guide, 1986). First, PSYCHOLOGICAL DISTRESS was regressed on the predictor and potential moderator variable. Next, the interaction term was entered into the equation. Substantial moderating effects were indicated if the Beta coefficient for the interaction term and the "F change" value were statistically significant.

Moderator model: social support. Four multiple regression equations were computed to test the moderating effects of the two perceived support factors, PERCEIVED SUPPORT and NEED FOR SUPPORT, and the two parenting stress factors, CHILD STRESSORS and MATERNAL STRESSORS on PSYCHOLOGICAL DISTRESS. None of the four interaction terms contributed significantly to the prediction of distress. In contrast, significant direct effects were found for both the perceived support factors and the parenting stress factors (see Table 15). PERCEIVED SUPPORT, in particular, explained a large proportion of the variance in distress scores controlling for the effects of CHILD STRESSORS and MATERNAL STRESSORS (i.e., 13% and 18.5% of the variance, respectively). The NEED FOR SUPPORT factor, on the other hand, explained significant but smaller amounts of variance in the outcome variable, controlling for CHILD STRESSORS and MATERNAL STRESSORS (i.e., 4% and 7% of the variance, respectively. Thus, the hypothesis of a buffer effect was not confirmed.

In order to test Cohen and Wills' (1985) assertion that buffering effects should occur when a specific stressor and type of support are matched, additional regression analyses were conducted on individual parenting stress and social support scales. The control and clinical groups were analyzed separately, since certain stressors might be associated with raising a handicapped or nonhandicapped child.

Table 15
Multiple Regressions of Psychological Distress on Parenting Stress and Social Support

PREDICTORS	Beta	R^2	R^2 change	df	F
CHILD STRESSORS	.473				
PERCEIVED SUPPORT	-.361	.417		3,190	68.18****
STRESSORS X SUPPORT	-.075	.422	.005	1,190	1.90
MATERNAL STRESSORS	.073				
PERCEIVED SUPPORT	-.430	.205		3,190	24.57****
STRESSORS X SUPPORT	.014	.205	.000	1,190	.04
CHILD STRESSORS	.316				
NEED FOR SUPPORT	.194	.328		3,190	46.55****
STRESSORS X NEED	.025	.328	.000	1,190	.17
MATERNAL STRESSORS	.178				
NEED FOR SUPPORT	.260	.097		3,190	10.30***
STRESSORS X NEED	-.045		.002	1,190	.432

Note: The R^2 reported for the first step includes both of the predictor variables (SPSS^x forced entry procedure).

* $p < .05$
** $p < .01$
*** $p < .001$
**** $p < .0001$

Twelve regression equations were computed for each group. Two parenting stress scales were selected as the best potential indicators of the two stress dimensions: the Intensity Scale from the ECBI which measures extent of child behavior problems, and an aggregate of three maternal stress scales from the PSI (i.e., sense of competence, restriction of role, and attachment). The following variables were tested in the regression analyses: the two PERCEIVED SUPPORT factors derived from prior factor analyses, the Kaplan scores, the Affect, Affirm, Aid and Average Functional Support scales from the NSSQ, and the functional support scores for three sources of support - health care providers, spouse and family. For example, it was hypothesized that the composite of maternal stressors which measured feelings of competence and restriction of role might be most effectively buffered by network members who provided affirmation, love and respect.

Due to the post-hoc nature of these analyses, a conservative alpha level of .005 was adopted to control the Type I error rate (Dunn, 1961). After applying this stringent criteria, three interaction effects for the clinical group attained significance (see Table 16). Child behavior problems were buffered by functional support averaged across the network. This interaction accounted for 10% of the variance in the model. In addition, maternal stressors were moderated by two of the three individual

Table 16
Interaction Effects for the Clinical Group
Between Specific Stressors and Support

Variables	Beta	R^2	R^2 change	df	F
Equation 1:					
Eyberg Intensity Scale	1.748				
Average Functional Support (NSSQ)	2.844	.26		3,88	
Eyberg X Functional Support	-2.791	.36	.107	1,88	14.816***
Equation 2:					
PSI Composite	.949				
Aid (NSSQ)	1.348	.21		3,92	
PSI X Aid	-1.470	.29	.079	1,92	10.196***
Equation 3:					
PSI Composite	1.268				
Affect (NSSQ)	.944	.27		3,92	
PSI X Affect	-1.370	.28	.064	1,92	9.131**

Note: The R^2 reported for the first step includes both of the predictor variables (SPSS^x forced entry procedure).

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

scales composing Average Functional Support (i.e., Aid and Affect). These moderating effects accounted for, on the average, seven percent of the variance. No significant interactions were found for the control group (p's ranging from .03 to .01).

Finally, additional analyses were conducted to determine the effects of the NETWORK SUPPORT factor. As predicted, extent of NETWORK SUPPORT did not buffer mothers from the impact of stress, nor did it contribute directly to the prediction of distress. This corresponds closely to the conclusions of other researchers that network support is less important than perceived emotional support in predicting stress-illness outcomes (Billings & Moos, 1981; McFarlane et al., 1983; Schaefer et al., 1981).

In summary, little confirmation was obtained for the moderator model of social support. Initial analyses employing well-defined and theoretically more reliable factor scores yielded no significant interactions between social support and parenting stress. In contrast, both social support and parenting stress exerted direct effects on psychological distress, rather than interactive effects varying across levels of stress or support.

Exploratory tests of Cohen and Wills' hypothesis that buffer effects should occur for stressors closely matched to types of support yielded mixed results. Employing a stringent alpha level, no significant buffering effects were

found for the control group. In the clinical group, however, three significant interactions were found between parent/child stressors and functional aspects of support. This lends some support to the idea that buffering effects do exist, but that they may be specific to the population, the type of stressor, and the form of support. However, replication of these results is needed to establish the reliability of the findings.

Moderator model: Personality variables. Model 1 predicted a significant moderating effect for two personality variables, Endurance and Nurturance. Multiple regression analyses were conducted to assess both the direct and moderating effects of these variables on psychological distress (as described above). No significant interactions were obtained (see Table 17). Rather, Endurance accounted for 4% of the variance in distress, controlling for the effects of Child Stressors, and 6% of the variance in distress, controlling for the effects of Maternal Stressors. Nurturance did not exert either direct or indirect effects on psychological distress.

Moderator model: Marital satisfaction. Moderator effects were expected between marital satisfaction and parenting stress. Marital adjustment is a significant predictor of depression (Monroe, Bromet, Connell & Steiner,

Table 17
Multiple Regressions of Psychological Distress on Parenting Stress, Endurance and Nurturance

PREDICTORS	Beta	R^2	R^2 change	df	F
CHILD STRESSORS	.511				
Endurance	.188	.325		3,201	48.68****
STRESSORS X Endurance	.183	.330	.005	1,201	1.50
MATERNAL STRESSORS	.106				
Endurance	.235	.081		3,201	8.87***
STRESSORS X Endurance	.106	.083	.002	1,201	.50
CHILD STRESSORS	.537				
Nurturance	.021	.291		3,168	34.71****
STRESSORS X Nurturance	-.010	.291	.000	1,168	.01
MATERNAL STRESSORS	.161				
Nurturance	.036	.031		3,168	2.70
STRESSORS X Nurturance	-.121	.034	.003	1,168	.57

Note: The R^2 reported for the first step includes both of the predictor variables (SPSS^x forced entry procedure).

* $p < .05$
** $p < .01$
*** $p < .001$
**** $p < .0001$

1986; O'Hara, 1986) and may provide a buffer for mothers experiencing high levels of parenting stress. In the current study, marital satisfaction was negatively correlated with depression (r (213) = -.33, p < .001), suggesting that mothers with less satisfying marital relationships were more likely to be depressed.

Multiple regression analyses were conducted regressing PSYCHOLOGICAL DISTRESS on the parenting stress factors and MARITAL SATISFACTION. Significant interactions were not obtained on either of the analyses. MARITAL SATISFACTION, however, did exert significant but modest direct effects on distress, accounting for 4-9% of the variance in the two-factor model (see Table 18). Thus, the prediction of buffering effects for marital satisfaction was not supported.

Hypothesis 3b. The mediator model of social support. In contrast to the moderating effects described above, Model 2 predicted that social support would influence outcomes of parenting stress indirectly, through a pathway linking parenting stress to psychological adjustment (see Figure 3). For the purposes of path analysis, a causal ordering of the variables must be postulated a priori based on theory and prior research. This model is then tested and interpreted. Path analytic techniques cannot rule out alternative causal explanations, but are limited to assessing the

Table 18
Multiple Regressions of Psychological Distress on Marital Satisfaction

PREDICTORS	Beta	R^2	R^2 change	df	F
MARITAL SATISFACTION	-.200				
CHILD STRESSORS	.488	.328		3,201	49.30****
MARITAL SAT. X STRESSORS		.332	.004	1,201	.25
MARITAL SATISFACTION	-.304				
MATERNAL STRESSORS	.113	.118		3,201	13.56****
MARITAL SAT. X STRESSORS	.039	.120	.001	1,201	.34

Note: The R^2 reported for the first step includes both of the predictor variables (SPSS^x forced entry procedure).

* $p < .05$
** $p < .01$
*** $p < .001$
**** $p < .0001$

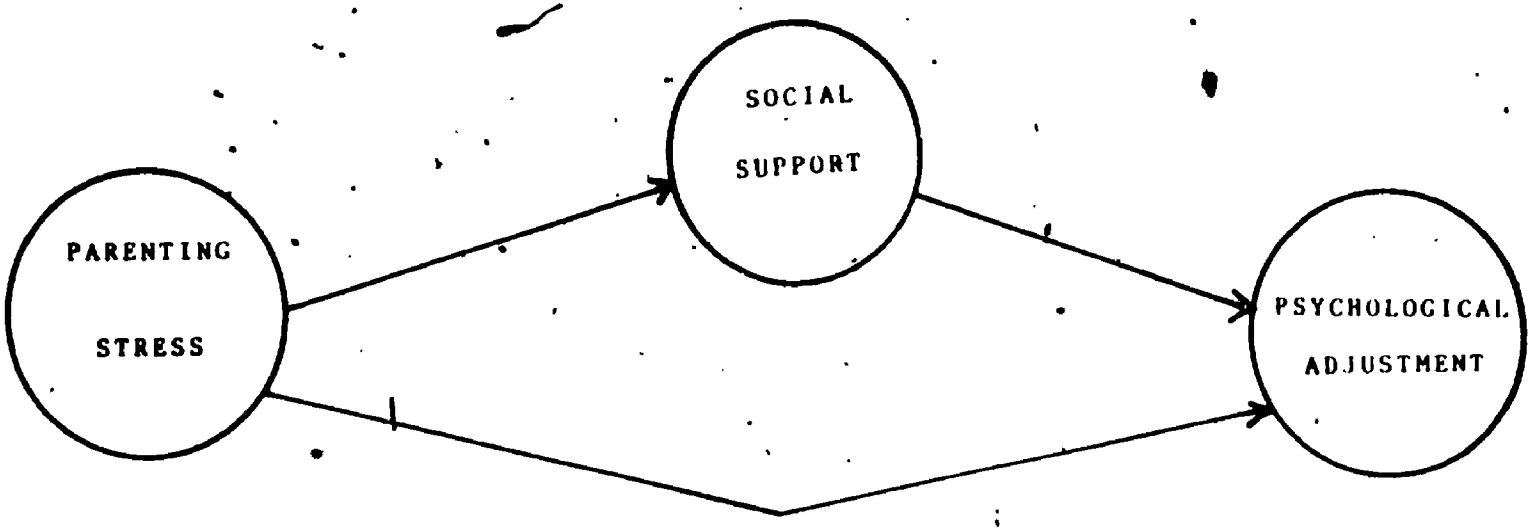


Figure 3. Mediator Model

strengths of the causal links which have been proposed (Asher, 1983). In the current study, parenting stress was hypothesized to cause changes in social support which would subsequently lead to alterations in symptoms of distress. The causal ordering of the variables was based upon several well-controlled, longitudinal studies examining relationships among stress, support and adjustment (Holahan & Moos, 1981; Mitchell & Moos, 1984).

In this model, social support is described as mediating the relationship between stressors and the criterion. To test the mediating effects of social support, a series of regression analyses was conducted, and the strengths of the paths were estimated. Baron and Kenny (1986) have recently proposed a method for testing mediation which is slightly different from the traditional path analytic approach (Asher, 1983). The mediator models which follow were tested using both approaches. Although similar results were obtained for each method, the Baron & Kenny results will be presented because of their stricter assumptions for assessing potential mediation.

In the first model, the mediating effects of the three social support factors were assessed for CHILD STRESSORS and PSYCHOLOGICAL DISTRESS. Only one of the support factors, PERCEIVED SUPPORT, met all of the conditions for potential mediation (i.e., a significant path between PERCEIVED SUPPORT and DISTRESS controlling for STRESSORS; a signifi-

cant path from CHILD STRESSORS to DISTRESS; a significant path from CHILD STRESSORS to PERCEIVED SUPPORT). According to Baron and Kenny, mediating effects are present if there is a significant reduction in the path coefficient from CHILD STRESSORS to DISTRESS, including the mediator, compared to the direct effect of CHILD STRESSORS on DISTRESS. As can be seen in Figure 4, a significant mediating relationship was found between CHILD STRESSORS, PERCEIVED SUPPORT and PSYCHOLOGICAL DISTRESS. As child-related stressors increased, perceived support decreased, leading to substantial increases in symptoms of depression, anxiety and hostility.

Next, mediating effects for social support and MATERNAL STRESSORS were tested using the approach described above. Mediating effects were found for both NETWORK SUPPORT and PERCEIVED SUPPORT (see Figure 5). In both cases, mothers who perceived themselves as less competent, less attached to their child and less rewarded in their parenting role had reduced support networks, fewer social contacts and lowered perceptions of being loved, respected and instrumentally aided (eg., lent money). This in turn influenced psychological adjustment, causing depressive symptoms and anxiety to rise.

Mediator model: Combining social support and marital satisfaction. The mediating effects of MARITAL SATISFACTION

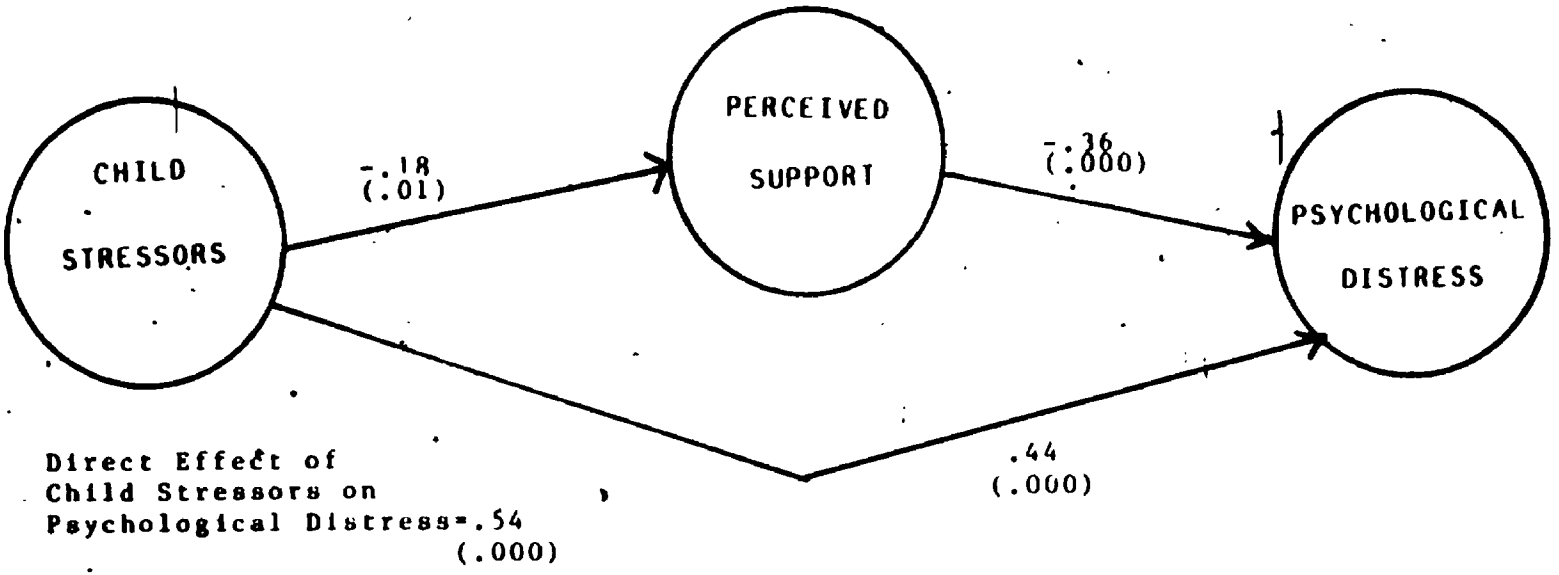


Figure 4. Mediating Effects of Perceived Support

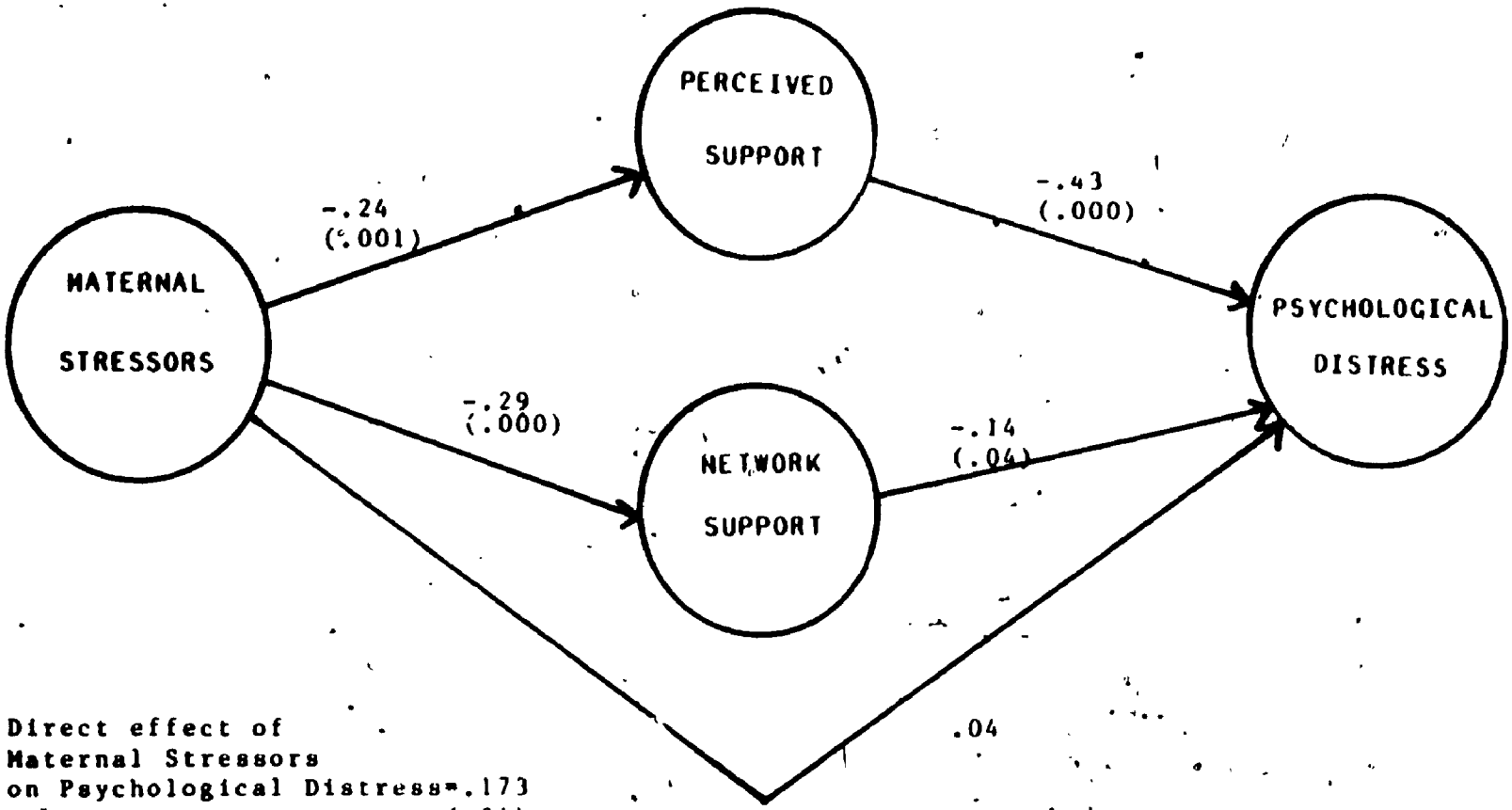
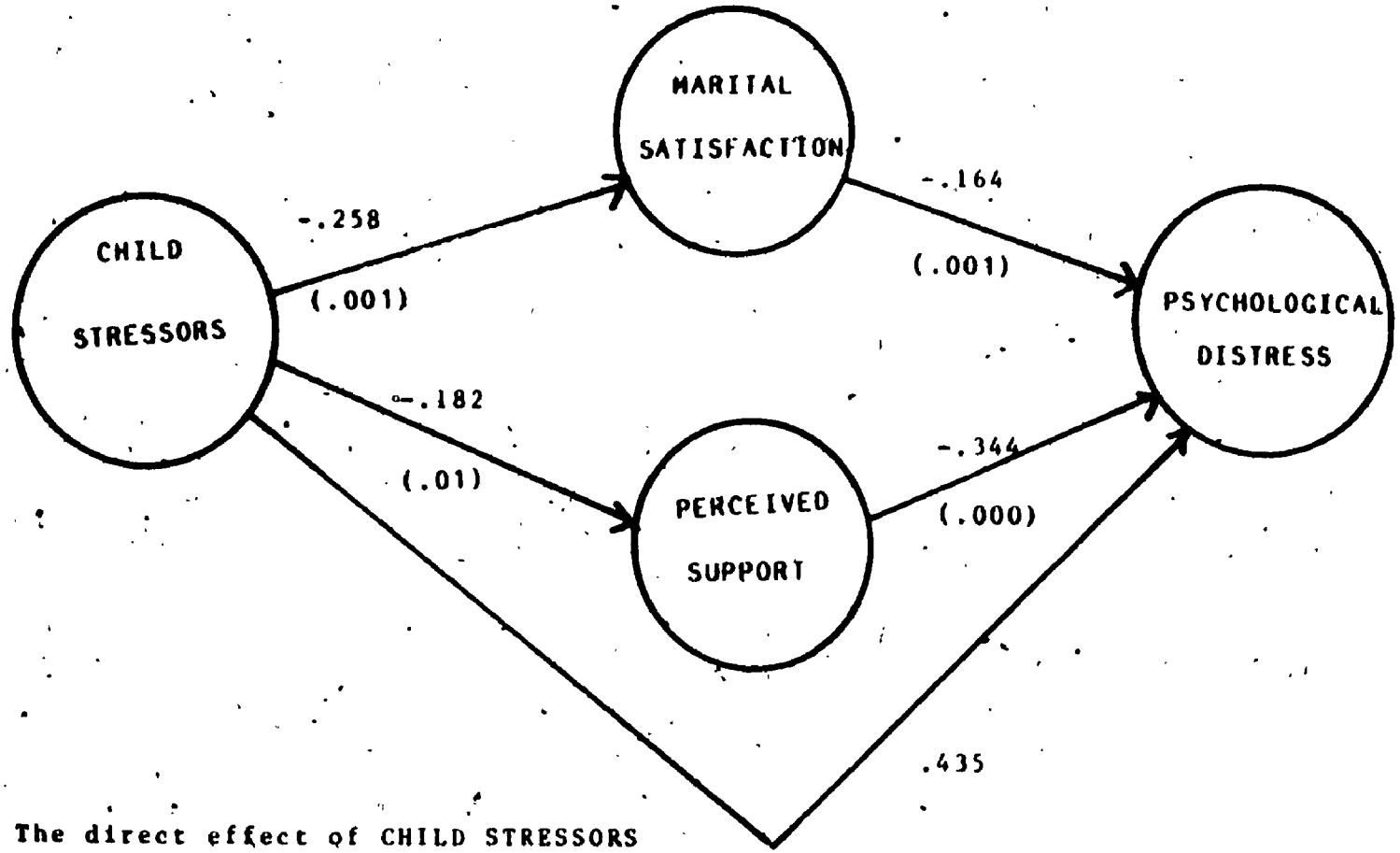


Figure 5. Mediating Effects of Network and Perceived Support

on both CHILD and MATERNAL STRESSORS were tested with the social support factors. Substantial mediating effects were obtained in both models (i.e. the CHILD STRESSOR Model and the MATERNAL STRESSOR Model). However, when MARITAL SATISFACTION was added to the MATERNAL STRESSOR Model which employed MATERNAL STRESSORS, the mediating influence of NETWORK SUPPORT was no longer statistically significant. A significant negative relationship was still obtained between MATERNAL STRESSORS and NETWORK SUPPORT, leading highly stressed mothers to withdraw from support members, but changes in NETWORK SUPPORT no longer significantly affected depressive symptoms.

In the combined models, perceived support and marital satisfaction mediated the relationships between both child and maternal stressors (see Figures 6 and 7). As levels of stress increased, perceptions of being supported and valued decreased along with ratings of marital satisfaction, cohesion and intimacy. These negative perceptions in turn led to greater symptoms of depression, anxiety and hostility.

Comparisons of the models incorporating either CHILD or MATERNAL STRESSORS suggested that more of the variance in the CHILD STRESSOR Model, could be explained by the influence of mediating variables (i.e., R^2 = .44 in CHILD STRESSOR Model versus R^2 = .27 in MATERNAL STRESSOR Model). Consistent with the results of social support research,



The direct effect of CHILD STRESSORS on PSYCHOLOGICAL DISTRESS=.54

Figure 6. CHILD STESSOR Model: Mediating Effects of Marital Satisfaction and Support on Child Stressors

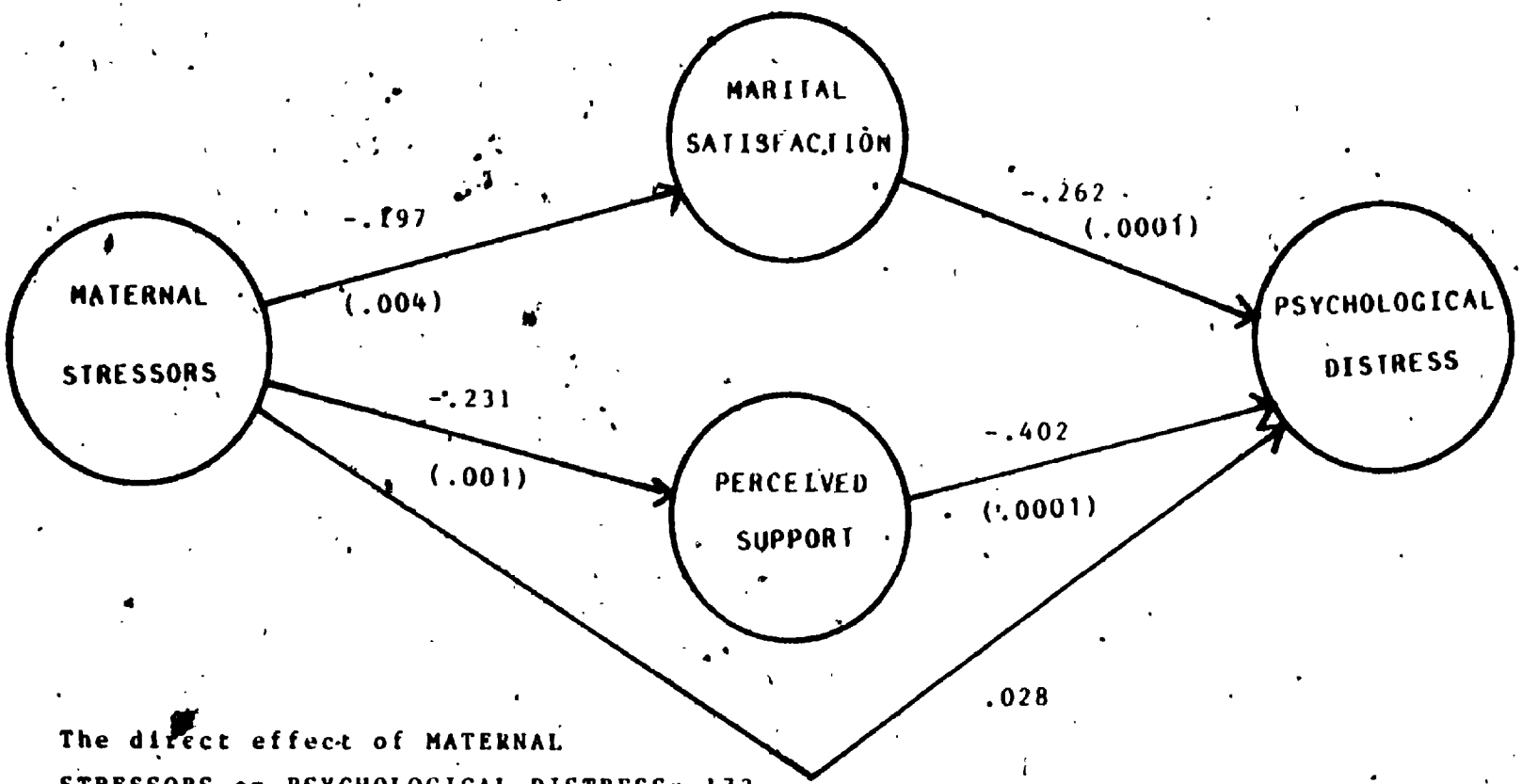


Figure 7. MATERNAL STRESSOR Model: Mediating Effects of Marital Satisfaction and Support on Maternal Stressors

perceived emotional support was far more important in explaining the stress-illness process than indices of network support. In addition, note that PERCEIVED SUPPORT exerted a stronger mediating effect on MATERNAL STRESSORS than CHILD STRESSORS, suggesting that perceived support may be particularly important for mothers feeling less competent, attached to their child and rewarded by their parenting role. In the MATERNAL STRESSOR Model, the influence of marital satisfaction and perceived support led to almost perfect mediation of the path from MATERNAL STRESSORS to DISTRESS (P41 = .028).

Finally, tests of the mediator models by group yielded a similar pattern of findings. No substantial differences in the relationships among the variables were found between the hearing impaired and comparison groups. Thus, hypothesis 3c, which predicted that the same model would account for the relationships among the variables in both groups, was supported.

CHAPTER FIVE

Discussion

Overview

The current study assessed the effect of a hearing impaired child on maternal levels of parenting stress and adjustment. The daily care-giving demands and chronic strains of raising a child who is severely handicapped in the areas of communication and learning, were evaluated using in-home interviews and standardized questionnaires. Parenting stress was expected to affect not only mothers' emotional functioning, but relationships with other family members. Therefore, the mothers' perceptions of the marital relationship as well as her broader support system were included in the model.

A second objective of the study was to identify third variables which might influence the well-established, but modest relationship between stress and illness. A recent surge of interest in personality and social support variables as potential health-protective or health-promotive factors has led investigators to test the direct and indirect effects of stressful life events on psychological adjustment. Considerable controversy and debate has been generated by this research, with few clear and consistent conclusions regarding the role of these variables in the stress-illness process.

Further, only a few researchers have gone beyond the assessment of stressful life events to applications with clinical populations undergoing high levels of stress. This has limited not only the type of stress (e.g., death, divorce) which has been considered, but has restricted the conclusions which can be drawn about processes of adjustment. Generalizing from buffering effects of support on number of stressful events, to a moderating function of social support with families of a chronically-ill or handicapped child is a large and questionable step. Several researchers have suggested that chronic strains which are unremitting and long-term may make different demands upon an individual's social resources than events which are acute and time-limited (Turner & Wood, in press).

In the present study, two competing models of the effects of social support and specific personality variables on adjustment were tested: the moderator "buffer" model and the mediator model. The moderator model, which predicts significant interactions between stress, personality and support, has been tested extensively in various studies with mixed results. The mediator model, on the other hand, which assesses the pathways between stress, support and illness, has received less attention in the literature and has rarely been considered as an alternative to direct or moderating explanations. Considerable confusion has also surrounded the terms used for these models, with numerous studies

reporting "mediating" effects of social support when a significant interaction (i.e., moderator effect) was tested (Dunst et al., 1986; McFarlane et al., 1983).

There are several possible explanations for the research emphasis on moderating effects. First, earlier studies in the field used an analysis of variance framework to test third variables, dichotomizing the stress and support variables into "high" and "low" groups (Lin et al., 1979; Nuckolls, Cassel & Kaplan, 1972; Sarason, Levine, Basham & Sarason, 1983). This approach, now considered inappropriate and less powerful (Cohen & Wills, 1985; Kessler & Cleary, 1980) does not easily lend itself to the regression methods used in path analysis which require continuously measured variables. In addition, it is simpler to plot and describe significant interactions within an ANOVA design than a correlational design.

Second, researchers have seemed preoccupied with predicting when social support might influence psychological outcomes (eg., when individuals are under high levels of stress) rather than knowing how (Baron & Kenny, 1986). Testing the notion of social support as an invulnerability factor (Mitchell et al., 1982) and focusing on identifying high-risk populations has appealed to both theoreticians and clinicians. If social support is useful primarily for groups under high stress, then interventions can be targeted to these vulnerable subgroups.

Finally, researchers are often reluctant to test causal links between variables, a requirement for mediation, because of the problems inherent in assumptions of causality (eg., parenting stress causes decrements in social support). Although causal links between variables are difficult to establish, it may still be important to develop testable hypotheses about the causal relationships among variables, even if the links are considered tentative (Mitchell & Moos, 1984). The results of initial path analyses can then subsequently be tested using longitudinal designs (Asher, 1983).

In summary, the current investigation attempted to go beyond the prior research in several ways. First, a clinical sample with a matched control group was used to assess the impact of a chronic stressor, parenting a handicapped child, on maternal levels of stress, support, marital satisfaction and adjustment. Second, multiple indicators of the latent variables were employed and factor analyzed to increase their reliability. In addition, attempts were made to closely match the social support and personality variables to the stressor. For this reason, personality variables not previously assessed within the stress-illness framework were chosen: Nurturance and Endurance.

Finally, two types of effects for third variables were tested - moderating and mediating functions. The discussion below focuses on the theoretical and clinical implications

of the group differences and tests of the model. In addition, the methodological limitations of the study and future directions for research will be addressed.

Group differences. Substantial group differences were found on the parenting stress measures. As anecdotal accounts have suggested, mothers rated their hearing impaired children as more demanding, moody, distractable and less accepting of change than mothers of hearing children. Interestingly, the absolute number of problems endorsed by mothers in both groups was similar, but the frequency of occurrence for the clinical group was substantially higher. Parenting a preschool-age child is a difficult task due to their struggles for independence and penchant for non-compliance (Patterson, 1980), possibly resulting in a high number of problem behaviors. Thus, the current findings suggest that a frequency measure may be a more sensitive indicator of child behavior problems than a simple count.

The structured interview data also yielded some important information about the daily parenting issues which are relevant to mothers in the clinical group. The parenting issues ranked as most stressful were those related to the hearing deficit. Difficulties teaching language to the child, communicating with the deaf child, and behavior problems at home were among the top three stressors for the clinical group. The results suggested that health care

professionals interacting with mothers of hearing impaired children may need to be aware of the specific demands which are placed upon them and provide training in areas which are most problematic. Broad-based skills training approaches may thus be less efficacious for this population.

Finally, large group differences were found on scales assessing mothers' perceptions of their parenting role. Mothers of hearing impaired children viewed themselves as less attached to their children, less competent as mothers and more restricted in their ability to pursue their own activities and interests. Prior research has focused heavily on child behavior problems and deficits in parental management skills (Forehand & McMahon, 1981), whereas the current findings indicated that feelings of incompetence and restrictions of personal freedom may be equally important predictors of maternal depression and anger. In the present study maternal self-perceptions accounted for substantial proportions of the variance in depression and hostility scores.

As predicted, significant group differences were found in marital adjustment. Mothers in the hearing impaired group rated their marriages lower on dimensions of affection, cohesion, agreement and satisfaction. While the process of marital breakdown is not clear, a high frequency of child behavior problems coupled with restrictions of activities and socialization may lead to increased fatigue

and frustration for both parents, substantially diminishing their feelings of partnership and intimacy. Anecdotally, information from the structured interviews, suggested that approximately 10% of the fathers were openly rejecting of their deaf child, which became a source of tension and conflict between the couple.

The results of prior studies examining the impact of a disabled or chronically-ill child on marital adjustment have been inconsistent. Some studies have shown either no effects, or a positive effect on the marriage (Kazak & Marvin, 1984; McAndrew, 1976), while other studies have reported divorce rates twice as high as the general population (Tew et al., 1974). While the current results yielded significant differences between the groups on all indices of marital satisfaction, no differences between the groups were obtained for marital status. One possible explanation for this may be the young age of the children in the study. It is plausible that the cumulative impact of high levels of stress may manifest itself later on in the marriage. Additionally, there are strong social norms against fathers leaving very young handicapped children.

Turning now to the group differences for social support, analyses of the support measures yielded mixed results. As predicted, mothers of hearing impaired children had significantly smaller support networks, particularly in the important categories of family and friends. This is not

surprising given the high number of problems related to relatives, friends and community members reported by the mothers in the clinical group. Mothers of hearing impaired children encountered misconceptions about their child's condition, advice-giving, and underestimates of their child's ability significantly more frequently than mothers of hearing children. The stigma associated with a handicapped child is well-documented (Fewell & Gelb, 1983) and may have led mothers to withdraw from network members who were critical and poorly informed.

An unexpected result was the absence of a consistent difference in ratings of perceived emotional support between the groups. Only two scales of perceived support yielded significant differences. These scales measured the availability of a confidant and rated perceptions of how much individual network members loved, respected and admired the mother.

On items measuring functional aspects of support (eg., material goods), satisfaction with relationships and need for support, the two groups did not differ. Thus, while mothers of hearing impaired children had fewer members in their network on whom to rely, they were satisfied with the availability of help. As other studies have noted, the size of a support network may not be related to the receipt of helping behaviors (Schaefer et al., 1981). It is possible that individual members of the network may provide greater

quantities of material aid, making it unnecessary to have multiple sources for this type of support.

The findings related to mothers' self-esteem and feelings of being appreciated were mixed. The NSSQ scales yielded substantial group differences, whereas the Revised Kaplan Scale did not. One possible explanation for this discrepancy may be the difference in formats on the two questionnaires. The NSSQ involves ratings on a 1-5 point scale of support members' communication of feelings of love and respect, whereas the Kaplan Scale requires mothers to check off their similarity to a fictitious female character who is greatly supported, etc. The measures differ not only in scaling but in process. The NSSQ asks mothers to rate their satisfaction with individuals they have listed as important in their network, whereas the Kaplan Scale requires them to compare themselves to a hypothetical situation. In sum, issues related to the measurement of social support constructs are complex, and very different results may be obtained depending upon both the dimensions which are assessed and the type of questionnaire method which is employed (Mitchell et al., 1982; Tardy, 1985).

Personality variables. Contrary to expectations, the personality variables assessed in this study did not moderate the impact of parenting stress. Instead, Endurance exerted modest but significant direct effects on psycho-

logical distress, controlling for the influence of parenting stress. Nurturance, on the other hand, did not affect psychological adjustment either directly or indirectly.

One possible explanation for the absence of a buffering effect for Endurance lies in the measurement of the construct. Post-hoc factor analyses of the items from the Personality Research Form (PRF) Endurance Scale (Jackson, 1984) and the second Endurance measure developed for this study, suggested that the ad hoc items loaded highly on both the PRF Endurance and Nurturance Scales. Thus, the two Endurance scales may not have measured the same construct, leading to weaker relationships between Endurance and other variables.

Second, the PRF Endurance Scale may not have measured the personality construct which was intended. An examination of the items from the PRF Endurance Scale suggested that it refers to task-oriented endurance, specific to a work setting. For example, "I am willing to work longer at a project than are most people" is a positively-keyed item from the PRF reflecting work-related endurance. The ad-hoc endurance items developed for the study were more related to child-rearing activities, and fit more closely with the trait adjectives listed for the PRF Nurturance Scale, namely, "interested in caring for children ... maternal, supporting, consoling" (Jackson, 1984, p. 7). Unfortunately, there are no personality scales available to assess this

particular characteristic of endurance, and future efforts would have to focus first on the development of a scale before inquiries into its associations with other variables could be made.

Models of adjustment. Contrary to predictions, social support and personality variables did not buffer stress. These results are surprising in view of the number of studies which have found significant buffering effects for perceived social support, in particular (Henderson, 1981; Kessler & Essex, 1982; La Rocco et al., 1980). Three explanations for the discrepancy in results are proposed.

First, the current study differed in several ways from most of the stress-illness literature. Approximately 90% of the studies assessing the effects of social support through 1983 used a stressful life events (SLE) checklist to measure stress (Cohen & Wills, 1985). In the present study, a specific type of stress was assessed, representing the chronic, on-going demands and difficulties of parenting, rather than the accumulation of events such as divorce or loss of a job over the past year.

Several investigators have argued that different types of stress may exert different effects, and that chronic strain should be differentiated from stressful events (Cohen & Wills, 1985; Pearlin & Schooler, 1978; Turner & Wood, in press). Interestingly, the PSI Life Stress Scale, which is

modeled after SLE checklists, showed no differences between the groups in "life stress" (in fact the mean score for the control group was higher) despite the huge group differences obtained on all of the "parenting stress" measures.

Another potential explanation for the lack of buffering effects in the current study was the measurement approach employed. As described earlier, multiple indicators of each variable were used and factor analyzed to strengthen the measurement of the support construct; in some ways this may have worked against obtaining moderating effects. Previous studies have relied heavily upon the use of ad-hoc scales, single-item indicators or measures with questionnable psychometric properties (Mitchell et al., 1982). Few researchers have employed multiple indicators reduced through factor analysis to unitary dimensions. The plethora of contradictory findings in the field may very well be attributable to which indicator the researcher used to assess support. Some evidence for this comes from the present study, in which post-hoc analyses of specific support scales yielded buffering effects for the clinical group. Two of the functional support scales from the NSSQ buffered child behavior problems and maternal stressors. Had these been the sole measures used in the study, very different conclusions about social support would have been drawn.

An opposite problem may occur with studies employing

multiple subscales or indices of support. In an effort to find moderating effects, multiple comparisons may be made without controlling for the Type I error rate (Barrera, 1981). Another problem may occur if a priori predictions about which scales will buffer stress are not made, and buffering effects are found for some measures but not others. Often these results are not replicated and the study is cited as evidence for social support as a moderator variable. For example, Eaton's (1978) study is often listed among those which have found buffering effects, but significant interactions were found for only two of the eight indices of support.

In contrast to the absence of a moderating effect for support and marital satisfaction, significant mediating effects for both of these variables were found. Increasing parenting stress influenced mothers' perceptions of being supported and esteemed, which subsequently led to greater symptoms of distress. Similarly, as parenting stress levels increased, ratings of marital adjustment decreased which led to symptoms of depression and anxiety. These relationships held true for child-related as well as maternal stressors. The results suggested that parenting stress alters appraisals of emotional support which in turn affects psychological adjustment. It should also be noted that these results were obtained for the analyses collapsing across the groups, indicating that the mediating effects observed might apply

to mothers of preschool age children in general. The mothers of hearing impaired children represented the more extreme end of the continuum.

One implication of a mediating rather than moderating function for social support and marital satisfaction is that these variables influence adjustment regardless of the severity of the stress level. Unlike stressful life events daily parenting stress may influence perceptions of being valued and cared for even at moderate or low levels. Moderating effects, on the other hand, specify a level at which social support will have an effect on adjustment.

Why didn't social support buffer mothers of preschool age children from the impact of stress? The current results suggest that mothers who are faced with parenting problems (i.e., child behavior problems or feelings or incompetence as a mother) will experience decrements in their perceptions of emotional support. The effect of parenting stress will be constant across the continuum of support. Mothers higher in perceived support will evidence fewer symptoms of depression compared to low support mothers, but social support will not buffer or protect them from the negative consequences of stress. Mothers experiencing stresses related to parenting will evidence lower perceptions of being loved and cared for and increasing symptoms of psychological distress. This leads logically to the development of treatment interventions focusing on the exogenous factor

of parenting stress.

In terms of the clinical applications of this research, the results suggest two possible points for intervention. One point would be at the parenting stress step in the model where both management of child behavior problems and alterations of mothers' evaluations of competency and personal freedom would be required. Consistent effects throughout this study for the MATERNAL STRESSORS dimension indicate that it is not enough to instruct mothers in behavior management procedures. An equally important part of the treatment package must address maternal perceptions of efficacy, attachment to the child and perceptions of the maternal role as rewarding and reinforcing.

Another possible point for intervention is the step where perceived support and marital satisfaction may influence psychological adjustment. At this juncture it may be important for mothers to learn to distinguish between members of the support network who provide affirmation, tangible assistance and positive regard versus network members who are critical and negatively influence feelings of self-esteem. For mothers of disabled children, whose networks are smaller to begin with, it may be important to identify one or two people who can meet these needs for perceived emotional support.

In addition, the current results underscore the importance of the marital relationship in influencing

psychological distress. Interventions aimed at increasing couples' shared activities, expressions of affection, and agreement over lifestyle and child-rearing issues may have beneficial effects on several indices of adjustment.

Methodological Limitations

Three major limitations of this research will be addressed. First, this study focused exclusively on mothers' reports of stress, marital satisfaction and adjustment. The perspectives of fathers and siblings were not included. Recent trends in both research and clinical intervention have documented the interactive nature of the family system (Madanes, 1981) and the importance of including all members of the system in descriptive or intervention-related activities (Joanning, Newfield & Quinn, 1987).

A father's adaptation to a hearing impaired child may differ greatly from a mother's, in terms of the types of stressors which are experienced, supportive transactions which are elicited and reports of psychological distress (Cummings, 1976). The current findings of lower ratings of marital satisfaction among the clinical group indicate that parenting stress has a negative impact on a couples' functioning, and underscores the importance of adopting a holistic approach in future research and treatment efforts.

A second limitation of this study is related to the

selection of the population and age group. Hearing impaired children as a clinical sample were chosen for several reasons, one being the specific and extremely taxing nature of the disability (Meadow, 1980) and its implications for disruptions in parenting. Profound communication barriers may exist between the child and mother due to the hearing impaired child's inability to speak or understand language. This makes even the simplest commands and daily routines challenging and frustrating (Gregory, 1976).

There is empirical evidence, though limited in scope, that the mothers of hearing impaired children in the current study were experiencing higher levels of stress than mothers of other disabled children. McKinney and Peterson (1987) administered the Parenting Stress Index to 67 mothers of young developmentally disabled children (eg., Down's syndrome, cerebral palsy) and obtained a mean Child Domain score at the 70th percentile. In the present deaf sample, the mean Child Domain score was at the 90th percentile. Thus, it appears that communication problems associated with parenting a hearing impaired child produce higher levels of stress compared to mothers of developmentally delayed or physically handicapped children. Further investigations, however, are needed to determine the generalizability of this finding to other chronically-ill populations.

The research findings are also limited to children in the preschool range, ages 2 through 5. This age was chosen

because of the salience and importance of the parenting role with young children, and because the parenting tasks for this age are specific and easily defined (eg., toilet training, bedtime routines). A large body of developmental research suggests that parenting issues vary across the lifespan (Eisenberg, Jansen & Sutkin, 1984; Erikson, 1959). A similar process has been documented in families with ill or handicapped children (Dunst, Trivette & Cross, 1986; Wikler, Wasow & Hatfield, 1981). Therefore, the parenting stresses reported by mothers of older or younger children would likely be different from those found in the current investigation.

Finally, a major limitation of this study was its cross-sectional design. Investigations in which data are gathered at one point in time are limited with respect to conclusions about the temporal ordering of events. In the current investigation, it was hypothesized that high levels of parenting stress would detrimentally affect perceptions of emotional support, which in turn, would lead to greater symptoms of psychological distress. It could be argued, on the other hand, that inadequate support systems predispose an individual to stressful events or increase their negative evaluations of the stressor.

Several well-controlled investigations provide support for the causal ordering of the variables chosen for the current investigation (Holahan & Moos, 1981; Mitchell,

Cronkite & Moos, 1983; Mitchell & Moos, 1984). For example, Mitchell and Moos (1984) employed a longitudinal design with 233 clinically depressed patients, assessing the effects of stressful events, chronic strains, and levels of support on depression over a one year period. The two-wave panel design allowed the investigators to control for initial levels of stress, support and depression in their analyses at the follow-up point. Considerable support was obtained for a causal link between stress and support; increasing levels of stress led to decreased perceptions of the availability of support. In addition, individuals under high levels of chronic strain were less likely to maintain social ties or relationships with family members. No effect for social support on either stressful events or strains was found.

While caution must be exercised in interpreting the causal relationships tested by the mediator models in the present study, important links between stress, support, marital satisfaction and psychological adjustment have been found and require further investigation using longitudinal designs.

Future Directions for Research

Future research on parental adaptation to a chronically-ill or disabled child is planned to provide additional tests of the model and to help rule out some of

the methodological problems of the present investigation. One line of research is to conduct longitudinal studies with parents of chronically-ill children. A longitudinal design would allow for initial levels of stress, support and symptomatology to be controlled in analyses testing the moderating and mediating effects of third variables. Thus, stronger causal conclusions could be drawn about the effects of stress on both social support, marital satisfaction and psychological adjustment. In addition, the use of causal modeling procedures such as LISREL would allow non-recursive (i.e., reciprocal) relationships among the variables to be tested.

A second line of research is to conduct quasi-experimental or true experimental investigations manipulating the mediating variables which were shown to influence psychological adjustment in the current investigation. Accordingly, a social support intervention (eg., parents' support group) might be compared to two other treatment groups: social support plus traditional parent management training and social support plus cognitive therapy. Such a multi-group treatment study would address both of the parenting stress dimensions identified in the current study, and would provide a comparison of their differential effects on adjustment.

Finally, evaluation of the adjustment processes of fathers warrants further investigation. The current results

suggested that marital satisfaction exerts both direct and indirect effects on psychological functioning in mothers raising handicapped children. Two types of research may be important in evaluating the process of adjustment for fathers: descriptive research assessing the relationships among stress, support, marital satisfaction and adjustment and outcome evaluations assessing the effects of providing support interventions and behavior management training for mother-father dyads.

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APPENDIX A

STRUCTURED INTERVIEW

FAMILY SUPPORT PROJECT

Subject I.D. Number _____

Respondent's Name _____

Current Telephone _____

Current Address _____

_____

Date of Interview _____

Consent Form Signed 1. Yes 2. No

Receipt Signed 1. Yes 2. No

1. Hearing Impaired
2. Non-Hearing Impaired
3. Epilepsy

I.D. No.____

INTERVIEW SCHEDULE

1. Mother's Name. _____

2. Age: _____

3. Marital Status
   1. single
   2. married
   3. separated
   4. divorced
   5. widowed
   6. other _____

4. Are you working at this time? 1. Yes 2. No

   IF WORKING:
   What is your current occupation? _____ **(GO TO Q.5)**

   IF NOT WORKING:
   Did you work prior to having _____? 1. Yes 2. No **(IF NO, GO TO Q.5)**

   IF YES:
   What were the reasons for leaving employment? _____

   _____

   1. Because of the child 2. Other

5. What is the highest grade you have completed at school? _____

6. How many years of schooling have you had since secondary school?

   0. None

   1. University/college: number of years attended _____

      degree/diploma received: _____

   2. Other **(SPECIFY)** _____

      number of years attended: _____

      degree/diploma received: _____

I.D. No.____

(IF NO SPOUSE/PARTNER, GO TO Q.16)

7. Spouse/partner's first name: _____

8. Age: ____

9. What is his relationship to the child?
   1. father
   2. stepfather
   3. mother's partner

10. Is he currently working? 1. Yes 2. No **(IF NO, GO TO Q.14)**

11. IF YES:
    Does he work full-time or part-time? 1. Full-time 2. Part-time

12. IF WORKING:
    What is his occupation? _____

13. Does he have to be away from home at all during the evening? 1. Yes 2. No

    IF YES:
    How often is he away from home?

    1. up to 2 nights/week
    2. 3 nights or more
    3. normally away
    4. other _____

14. What is the highest grade he completed at school? ____

15. How many years of schooling has he had since secondary school?

    0. None

    1. University/college: number of years attended: _____
       degree/diploma received: _____

    2. Other **(SPECIFY)** _____
       number of years attended: _____
       degree/diploma received: _____

I.D. No._____

16. I'd like to know something about who lives in this house with you. Please tell me the first names of the people who live here, their age, sex, and relationship to you. **(IF NO ONE ELSE LIVES IN THE HOME, GO TO Q.17)**

	NAME	AGE	SEX	RELATIONSHIP
1.	_____	____	____	_____
2.	_____	____	____	_____
3.	_____	____	____	_____
4.	_____	____	____	_____
5.	_____	____	____	_____

17. Is there anyone outside of the immediate family like a babysitter or a grandparent, who spends more than a couple of hours a week with your child?

	NAME	RELATIONSHIP	TIME PER WEEK
1.	_____	_____	_____
2.	_____	_____	_____

18. It is important for this study that we know sometning about your financial circumstances. I realize these are extremely personal matters and I wish to assure you again that your responses will be kept strictly confidential. Would you please tell me the letter that gives the best estimate of your total household income before taxes? I don't need an exact number, just a rough idea of the range your family income falls in.

	0.	refused/DK
A	1.	under $5,000
B	2.	$5,000 to $9,999
C	3.	$10,000 to 19,999
D	4.	$20,000 to 29,999
E	5.	$30,000 to 39,999
F	6.	$40,000 to 49,999
G	7.	$50,000 to 59,999
H	8.	$60,000+

I.D. No._____

Throughout this interview, I will be asking you to rate the stressfulness of various aspects of your life. When I ask you to do this, I would like you to think of stress as meaning something that taxes your resources or as something that is more than you can handle comfortably.

19. How stressful is it for you to meet the financial commitments related to caring for your hearing impaired child?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

MEDICAL HISTORY AND HEARING LOSS

Now I would like to ask you some questions about _____.

20. When was _____born? ____ ____ ____
Y Y / M M / D D

21. Sex: 1. male 2. female

22. Was there anything unusual about the pregnancy? 1. Yes 2. No **(IF NO, GO TO Q.23)**

IF YES:
Please describe: _____

_____

_____

23. Was the birth premature? 1. Yes 2. No **(IF NO, GO TO Q.24)**

IF YES:
How early was it? _____(weeks)

24. After _____ was born, were there any medical problems in the first few months, or was the baby's behavior unusual in any way? 1. Yes 2. No **(IF NO, GO TO Q.25)**

IF YES:
Please describe: _____

_____

_____

_____

I.D. No.____

25. Did it seem to you that ____ was reaching the developmental milestones on time, for example, sitting up, crawling, walking?
1. Yes 2. No

At what age did your child reach the following milestones?

MILESTONE	AGE RANGE (in months)
1. sitting up	____
2. crawling	____
3. walking	____
4. first word	____

26. Which of the following childhood diseases has your child had?

____ Mumps	____ Diptheria
____ Red Measles	____ Whooping Cough
____ German Measles	____ Pneumonia
____ Scarlet fever	____ Frequent colds
____ Chicken pox	____ Allergies
____ Meningitis	____ Ear infections ____ recurring
____ Other _____	

27. Do any of your other children have medical problems? 1. Yes 2. No

IF YES:
Please describe: _____

_____

I'm interested in how you found out that your child has a hearing loss.

28. As best as you can tell, was your child deaf at birth?

1. Yes 2. No

IF NO:
When do you think the deafness was acquired? ____ (yrs) ____ (mos) DK

I.D. No.____

29. What have your doctors told you about the cause of deafness?

1. hereditary
2. maternal rubella
3. prematurity
4. at birth
5. meningitis
6. other _____
7. unknown

30. How old was your child when you first suspected that he/she had some sort of hearing problem?
(yrs) (mos)

31. How old was _____ when you first sought professional help? _____ _____
(yrs) (mos)

32. Who did you consult at that time? **(CIRCLE ONE)**

1. Public health nurse
2. Family doctor
3. Pediatrician
4. Doctor specializing in hearing problems
5. Audiologist
6. Other _____

33. Did you consult any other professionals at that time or later on?
1. Yes 2. No

IF YES:
How many different places did you go before you received the diagnosis? _____

DO NOT ASK THE FOLLOWING QUESTION; ADD UP THE NUMBER OF VISITS TO PROFESSIONALS
In total, how many times did the mother see professionals before receiving a diagnosis? _____

34. Which of the following types of professionals did you see and how often? **(CIRCLE EACH ONE THAT APPLIES)**

1. Public health nurse ____
2. Family doctor ____
3. Pediatrician ____
4. Doctor specializing in hearing problems ____
5. Audiologist ____
6. Other _____ ____

35. How old was your child when you learned that he/she definitely had a hearing loss?
(yrs) (mos)

I.D. No._____

36. In general, how difficult has it been to get good medical/audiological care for your child?
    1. not at all difficult
    2. a bit difficult
    3. fairly difficult
    4. quite difficult
    5. extremely difficult

37. What have professionals told you about the degree of hearing loss?

1. _____	db loss	moderate	_____
2. _____	db loss	severe	_____
3. _____	db loss	profound	_____
4. _____	db loss	total	_____

(IF NO INFORMATION ON Q.37, ASK THE FOLLOWING QUESTION)

38. Can you estimate how severe your child's hearing loss is? Let me read you the following categories and tell me which one best describes his/her hearing?

    1. Can hear and understand what a person says without seeing the face and lips
    2. Can hear and understand a few words while seeing the speaker's face
    3. Can tell the sound of speech from other sounds
    4. Can tell one kind of noise from anotner
    5. Can hear loud noises
    6. Does not hear anything

39. Since the time of the diagnosis, how stressful has it been for you to have a child with a hearing loss?

    1. not at all stressful
    2. a bit stressful
    3. fairly stressful
    4. quite stressful
    5. extremely stressful

I.D. No.____

40. I'm going to read you a list of things which may be stressful when raising a hearing impaired child. Please rate them according to their stressfulness for you.

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

TYPE OF AREA	STRESSFULNESS
1. hearing aids	1 2 3 4 5
2. outings in the community	1 2 3 4 5
3. relationships with parent's friends or extended family	1 2 3 4 5
4. discipline	1 2 3 4 5
5. marital relationship	1 2 3 4 5
6. following routines (mealtime, bedtime)	1 2 3 4 5
7. educational placement	1 2 3 4 5
8. safety (crossing the street)	1 2 3 4 5
9. communication (understanding you, gesturing, speaking)	1 2 3 4 5
10. relationships with other children	1 2 3 4 5
11. behavior problems (tantrums)	1 2 3 4 5
12. having to be a language teacher	1 2 3 4 5
13. relationship with brothers and sisters	1 2 3 4 5
14. medical/audiological care	1 2 3 4 5
	TOTAL SCORE ____

HEARING AIDS

41. Does your child use a hearing aid? 1. Yes 2. No

IF YES:
How old was ____ when first hearing aid was obtained? (yrs) (mos)

I.D. No._____

42. How much does _____ wear the aid? Can you estimate what percentage of his/her waking time the aid is worn, excluding such things as nap times and bath times?

Percentage of time _____% Comments: _____

_____

_____

43. I'm going to read you a list of difficulties you might be having with regard to hearing aids. Please tell me whether tnese things have been a problem for you in the past month.

TYPE OF PROBLEM	NO	YES
1. obtaining appropriate aids	0	1
2. losing them	0	1
3. breaking of hearing aids	0	1
4. expense	0	1
5. resistance to wearing them	0	1
6. keeping hearing aid in working order	0	1
7. getting spare batteries or leads	0	1
8. fitting them properly	0	1
9. other _____	0	1

TOTAL SCORE _____

44. Overall, how stressful is the whole area of hearing aids for you?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

45. How helpful do you find the hearing aid is for _____?
1. not at all helpful
2. a bit helpful
3. fairly helpful
4. quite helpful
5. extremely helpful

(ADMINISTER THE CES-D)

I.D. No.____

EDUCATION

46. Please name all of the educational programs your child is currently attending. Include any type of educational or language program: nursery school, speech therapy, private tutoring, hospital out-patient program, visiting teacher, etc.

0. Not involved in any programs **(IF NO PROGRAMS, GO TO Q.47)**

A. 1. Type of program: _____

2. How often were sessions or classes held:
   1. once a month
   2. twice monthly
   3. once a week
   4. 2-4 times per week
   5. 5-7 times per week

3. How helpful was the program for you?
   1. not at all helpful
   2. a bit helpful
   3. fairly helpful
   4. quite helpful
   5. extremely helpful

B. 1. Type of program: _____

2. How often were sessions or classes held:
   1. once a month
   2. twice monthly
   3. once a week
   4. 2-4 times per week
   5. 5-7 times per week

3. How helpful was the program for you?
   1. not at all helpful
   2. a bit helpful
   3. fairly helpful
   4. quite helpful
   5. extremely helpful

C. 1. Type of program: _____

2. How often were sessions or classes held:
   1. once a month
   2. twice monthly
   3. once a week
   4. 2-4 times per week
   5. 5-7 times per week

I.D. No._____

3. How helpful was the program for you?

   1. not at all helpful
   2. a bit helpful
   3. fairly helpful
   4. quite helpful
   5. extremely helpful

47. Is there another type of program that you wish were available?
   1. Yes 2. No

   If yes, what would you have preferred? _____

48. Thinking back to the programs which your child is attending, do you have any of the following types of contact with the school, teacher, or therapist? How often do you have this contact? How helpful is this contact for you?

FREQUENCY	HELPFULNESS
0. not at all	
1. once a year	1. not at all helpful
2. 2-3 times a year	2. a bit helpful
3. 4-8 times a year	3. fairly helpful
4. 1-2 times a month	4. quite helpful
5. 1-5 times a week	5. extremely helpful

TYPE OF CONTACT	FREQUENCY	HELPFULNESS
1. talking to the teacher	0 1 2 3 4 5	1 2 3 4 5
2. parenting weekends	0 1 2 3 4 5	1 2 3 4 5
3. attending open house	0 1 2 3 4 5	1 2 3 4 5
4. other _____	1 2 3 4 5	1 2 3 4 5

I.D. No.____

49. Now, I would like you to think about your contact with health care professionals.

	TYPE OF CONTACT	FREQUENCY	HELPFULNESS
1.	family doctor	0 1 2 3 4 5	1 2 3 4 5
2.	pediatrician	0 1 2 3 4 5	1 2 3 4 5
3.	specialist (ear, nose and throat)	0 1 2 3 4 5	1 2 3 4 5
4.	audiologist	0 1 2 3 4 5	1 2 3 4 5
5.	speech therapist	0 1 2 3 4 5	1 2 3 4 5
6.	psychologist	0 1 2 3 4 5	1 2 3 4 5
7.	other _____	1 2 3 4 5	1 2 3 4 5

50. Please, think about how much contact you have with organizations concerned with deafness.

	TYPE OF CONTACT	FREQUENCY	HELPFULNESS
1.	Ontario Parents' Council	0 1 2 3 4 5	1 2 3 4 5
2.	Voice for Hearing Impaired Children	0 1 2 3 4 5	1 2 3 4 5
3.	Parents for Total Communication	0 1 2 3 4 5	1 2 3 4 5
4.	Alexander Graham Bell Association	0 1 2 3 4 5	1 2 3 4 5
5.	Ontario Association of the Deaf	0 1 2 3 4 5	1 2 3 4 5
6.	Canadian Association of the Deaf	0 1 2 3 4 5	1 2 3 4 5
7.	Informal Parent Group (self-help)	0 1 2 3 4 5	1 2 3 4 5
8.	Other _____	1 2 3 4 5	1 2 3 4 5

TOTAL SCORE _____

51. Do you have any contact with other parents of deaf children?
1. Yes 2. No

52. Would you like greater contact with parents like yourself?
1. Yes 2. No

I.D. No.____

53. Thinking ahead to the future, have you decided on an educational placement for your child? 1. Yes 2. No

IF YES:

What kind of program will your child attend? _____

IF NO:
Are you in the process of finding a placement? 1. Yes 2. No
(IF NO, ADMINISTER JEP SCALE)

54. How stressful has it been to look for a suitable program for ____?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

55. I'm going to read you a list of possible concerns you may have regarding your child's educational placement. Please tell me whether these things have been a concern for you in the past few months.

AREA OF CONCERN	NO	YES
1. the prospect of sending the child away	0	1
2. not being able to find an appropriate setting	0	1
3. trying to obtain the necessary information	0	1
4. not knowing who to consult about finding an educational placement	0	1
5. not knowing what my child would need in terms of an educational setting	0	1
6. having to settle for <u>not</u> being able to mainstream my child	0	1
7. other _____	0	1

TOTAL SCORE _____

56. Overall, how stressful is the whole area of educational placement for you?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

(ADMINISTER THE JEP)

I.D. No. ____

COMMUNICATION

Now, I would like to talk a little about how you and your child communicate.

57. When you communicate with your child, how often do you use the following forms of communication?

0. never
1. rarely
2. sometimes
3. about 1/2 the time
4. more than 1/2 the time
5. all the time

FORMS OF COMMUNICATION	FREQUENCY
1. Total Communication	0 1 2 3 4 5
2. Speech alone (oral method)	0 1 2 3 4 5
3. Gesture and pantomime	0 1 2 3 4 5
4. Signs alone	0 1 2 3 4 5
5. Fingerspelling	0 1 2 3 4 5
6. Drawing	0 1 2 3 4 5
7. Other _____	0 1 2 3 4 5

58. When your child communicates with you, how often does ____ use the following forms of communication?

FORMS OF COMMUNICATION	FREQUENCY
1. Total Communication	0 1 2 3 4 5
2. Speech alone (oral method)	0 1 2 3 4 5
3. Gesture and pantomime	0 1 2 3 4 5
4. Signs alone	0 1 2 3 4 5
5. Fingerspelling	0 1 2 3 4 5
6. Drawing	0 1 2 3 4 5
7. Other _____	0 1 2 3 4 5

I.D. No.____

59. How well does your child understand you?

1. Understands little or nothing
2. Understands some, but less than 1/2
3. Understands about half
4. Understands more than 1/2
5. Understands almost everything

60. How well do you understand what your child is trying to communicate?

1. Understand little or nothing
2. Understand some, but less than 1/2
3. Understand about half
4. Understand more than 1/2
5. Understand almost everything

61. How stressful are the difficulties of communicating with your child?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

62. Have you decided on what formal approach you will use to communicate with your child? 1. Yes 2. No

IF YES:
What approach have you chosen?

1. sign
2. finger-spelling
3. lip reading
4. oral method
5. total communication (sign and speaking)
6. other _____

63. How long have you been using sign/the oral method? _____

64. Have you taken a formal course in sign language/the oral method?
1. Yes 2. No 3. Ongoing lessons with oral method

65. Did you complete the course? 1. Yes
2. No
3. not applicable for oral method

66. Has anyone in your family or social circle taken a formal course in sign/the oral method?

1. Yes 2. No 3. not applicable for oral metnod

IF YES:
Who? _____

67. Did they complete the course? 1. Yes 2. No

68. Has it been difficult to learn sign/the oral method? 1. Yes 2. No

69. In general, how stressful has it been to learn sign/the oral method?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

70. How difficult was it for you to make the decision about which communication approach to use?
    1. not at all difficult
    2. a bit difficult
    3. fairly difficult
    4. quite difficult
    5. extremely difficult

71. I'm going to read you a list of things you may be doing at home to help your child learn language. Please tell me how often you do these activities and how helpful they are to your child.

FREQUENCY	HELPFULNESS
0. not at all	
1. less than once/week	not at all helpful
2. once/week	a bit helpful
3. several times/week	fairly helpful
4. once/day	quite helpful
5. several times/day	extremely helpful

ACTIVITY	FREQUENCY	HELPFULNESS
1. Structured language lessons	0 1 2 3 4 5	1 2 3 4 5
2. Informal language lessons (play)	0 1 2 3 4 5	1 2 3 4 5
3. Teaching signs	0 1 2 3 4 5	1 2 3 4 5
4. Reading books	0 1 2 3 4 5	1 2 3 4 5
5. Teaching basic concepts (colors, numbers, shapes)	0 1 2 3 4 5	1 2 3 4 5
6. Repetitions of words/phrases	0 1 2 3 4 5	1 2 3 4 5
7. Practicing vowel/consonant sounds	0 1 2 3 4 5	1 2 3 4 5
8. Other _____	0 1 2 3 4 5	1 2 3 4 5

72. Overall, how stressful is it for you to do these learning activities with your child?
    1. not at all stressful
    2. a bit stressful
    3. fairly stressful
    4. quite stressful
    5. extremely stressful

I.D. No._____

73. I am going to read you a list of things which you may have encountered while you were trying to work with _____ on language. Please tell me how often, if at all, you have this problem.

FREQUENCY
0. not at all
1. less than once/week
2. once/week
3. several times/week
4. once/day
5. several times/day

PROBLEM	FREQUENCY
1. Keeping child's interest	0 1 2 3 4 5
2. Gaining cooperation to do activity	0 1 2 3 4 5
3. Behavior problems during activity	0 1 2 3 4 5
4. Other _____	1 2 3 4 5

74. Overall, how stressful is it for you to deal with these problems when you are trying to work with your child on learing activities?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

(ADMINISTER NORBECK AND SCL-90)

I.D. No._____

ROUTINES

Now, I'd like to know a little about your routines with _____, for example, bedtimes, mealtimes, and toilet-training.

75. Does your child have a regular bedtime routine, for example, reading a story, brushing teeth, getting pyjamas on?
1. Yes 2. No

76. What time does your child usually go to bed? _____ hours

77. Overall, how stressful is it for you to get your child to go to bed each night?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

78. I'm going to read you a list of things which you may have encountered while getting _____ ready for bed. Please tell me whether or not these things have happened in the past month.

PROBLEMS	NO	YES
1. tantrums	0	1
2. dawdling	0	1
3. feeling frightened of the dark	0	1
4. uncooperative	0	1
5. staying awake	0	1
6. sleeping in places other than own bed	0	1
7. getting up several times	0	1
8. nightmares	0	1
9. not having time for yourself	0	1
10. other _____	0	1

TOTAL SCORE _____

79. Overall, how stressful are bedtime routines for you?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

Now, let's talk for a minute about mealtimes with _____.

80. I'm going to read you a list of problems which you may have encountered during mealtimes. Please tell me whether or not any of these things have happened in the past month.

PROBLEMS	NO	YES
1. finicky eater	0	1
2. getting up from table	0	1
3. eating with fingers	0	1
4. uncooperative	0	1
5. making a lot of noise	0	1
6. not coming to table when asked	0	1
7. poor table manners (throwing food, playing with food, spitting)	0	1
8. other _____	0	1

TOTAL SCORE _____

81. Overall, how stressful are mealtimes for you?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

82. Is your child toilet-trained? 1. Yes 2. No

83. I'm going to read you a list of possible problems you may have had while toilet-training your child. Please tell me whether or not these things were/are a problem for you.

PROBLEMS	NO	YES
1. frequent accidents	0	1
2. not understanding the routine	0	1
3. wetting at night	0	1
4. uninterested	0	1
5. not being able to communicate the need	0	1
6. other _____	0	1

TOTAL SCORE _____

84. How stressful is it (was it) for you to teach _____ about using the toilet?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

(ADMINISTER THE EYBERG)

I.D. No.____

DISCIPLINE

85. With children in the pre-school age, mothers often have to use some form of discipline. In a typical week, how often do you use ( )? **(INSERT EACH OF THE DISCIPLINE TECHNIQUES LISTED BELOW)**

1. not at all
2. once per week
3. several times per week
4. once per day
5. more than 5 times per day

DISCIPLINE	FREQUENCY
1. verbal/signed command	1 2 3 4 5
2. time out (sending to other room)	1 2 3 4 5
3. contingency (If... then...)	1 2 3 4 5
4. spanking	1 2 3 4 5
5. physical prompt	1 2 3 4 5
6. scolding	1 2 3 4 5
7. withholding privileges	1 2 3 4 5
8. ignoring attention seeking behavior	1 2 3 4 5
9. tangible rewards	1 2 3 4 5
10. praise	1 2 3 4 5
11. other _____	1 2 3 4 5

86. Overall, how stressful is it for you to get your child to behave at home?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

87. Overall, how stressful is it for you to get your child to behave in the community or at other people's homes?

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No._____

SAFETY

88. There are lots of things that children have to be taught about safety at ~~this~~ age. I'm going to read you a list of things which you might be teaching your child about safety. Please tell me whether or not you have run into any of these situations in the past month.

ACTIVITY	NO	YES
1. Crossing the street (stop signs, traffic lights)	0	1
2. Not touching hot stoves, irons, etc.	0	1
3. Staying away from electrical sockets	0	1
4. Not touching sharp objects, such as knives	0	1
5. Staying away from poisonous substances	0	1
6. Riding bike on the road	0	1
7. Being wary of strangers	0	1
8. Other _____	0	1

TOTAL SCORE _____

89. Overall, how stressful is it for you to teach your child about safety?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

90. Do you allow your child to cross the street independently? How stressful is that for you? 1. Yes 2. No

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

91. Do you allow your child to play in the yard independently? How stressful is that for you? 1. Yes 2. No

1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

SOCIALIZATION

92. I am going to read you a list of concerns you may have about ____ playing with other children in the neighbourhood. Please tell me whether any of these things have happened in the last month.

CONCERNS	NO	YES
1. being teased	0	1
2. being left out	0	1
3. fighting	0	1
4. not being understood by the children	0	1
5. not understanding the children	0	1
6. playing with children much older or younger	0	1
7. being taken advantage of	0	1
8. aggressive/inappropriate behaviour (child's)	0	1
9. being blamed for arguments or mishaps	0	1
10. other _____	0	1

TOTAL SCORE _____

93. Overall, how stressful is it for you to allow your child to play with other children in the neighborhood?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No._____

94. I am going to read you a list of concerns you may have about _____'s relationship with his/her brothers/sisters. Please tell me whether these things have happened in the past month.

CONCERNS	NO	YES
1. jealousy (parent spending more time with deaf child)	0	1
2. embarrassed about child's deafness	0	1
3. teasing the deaf child	0	1
4. leaving _____ out of activities	0	1
5. fighting	0	1
6. siblings not understanding _____	0	1
7. deaf child not understanding siblings	0	1
8. siblings taking advantage of _____	0	1
9. aggressive/inappropriate behaviour between _____ and siblings	0	1
10. other _____	0	1

TOTAL SCORE _____

95. Overall, how stressful is it for you to deal with your child's relationship with his/her brothers/sisters?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

I.D. No.____

96. I am going to read you a list of concerns you may have about the reactions of your friends and relatives to your deaf child. Please tell me whether or not these things have happened in the past month.

CONCERNS	NO	YES
1. Opinions and misconceptions of friends/relatives	0	1
2. Being ignored or excluded by friends/relatives	0	1
3. Advice-giving	0	1
4. Underestimating child's abilities	0	1
5. Other _____	0	1

TOTAL SCORE ____

97. Overall, how stressful is it for you to deal with your friends and relatives reactions to your child?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

98. Now, I would like to read the same list as before but I would like you to think about the public or the community when telling me whether or not these things have happened in the past month.

CONCERNS	NO	YES
1. Opinions and misconceptions of the public	0	1
2. Being ignored or excluded by community members	0	1
3. Advice-giving	0	1
4. Underestimating child's abilities	0	1
5. Other _____	0	1

TOTAL SCORE ____

99. Overall, how stressful is it for you to deal with the reactions of the community or the public to your child?
1. not at all stressful
2. a bit stressful
3. fairly stressful
4. quite stressful
5. extremely stressful

(ADMINISTER THE BARRERA AND THE PSI)

I.D. No.____

FOLLOW-UP INFORMATION

We may be doing some follow-up studies in a year or two. If that were the case, would you be willing to be contacted again? There is no obligation if you say "yes" now, we would just like to know if we have permission to contact you again. 1. Yes 2. No

IF YES:

To be certain that we can get in touch with you in the future, would you please give me the name, telephone number and address of two close friends or relatives who would know how to contact you, should we be unable to do so.

NAME: _____

TELEPHONE NUMBER: _____

ADDRESS: _____

_____

NAME: _____

TELEPHONE NUMBER: _____

ADDRESS: _____

_____

GIVE RESPONDENT BOOK AND HAVE RESPONDENT SIGN RECEIPT.

COMPLETE THE FOLLOWING QUESTIONS AFTER LEAVING INTERVIEW.

Type of Residence:
1. house
2. duplex
3. townhouse
4. apartment
5. other _____

Time taken for interview: _____

Impressions/Comments: _____

_____

_____

_____

Audiotape Rating:
0. not taped
1. not interesting
2. moderately interesting
3. very interesting

APPENDIX B

INDEPENDENT AND DEPENDENT MEASURES

Parenting Stress Scale

1. How stressful is it for you to meet the financial commitments related to caring for your hearing impaired child?
2. In general, how difficult has it been to get good medical/audiological care for your child?
3. Since the time of the diagnosis, how stressful has it been for you to have a child with a hearing loss?
4. How stressful has it been to look for a suitable program for _____?
5. Overall, how stressful is the whole area of educational placement for you?
6. How stressful are the difficulties of communicating with your child?
7. Overall, how stressful is it for you to do these learning activities with your child?
8. Overall, how stressful is it for you to deal with these problems when you are trying to work with your child on learning activities?
9. Overall, how stressful are bedtime routines for you?
10. Overall, how stressful are mealtimes for you?
11. How stressful is it (was it) for you to teach _____ about using the toilet?
12. Overall, how stressful is it for you to get your child to behave at home?

13. Overall, how stressful is it for you to get your child to behave in the community or at other people's homes?

14. Overall, how stressful is it for you to teach your child about safety?

15. Do you allow your child to cross the street independently? How stressful is that for you?

16. Do you allow your child to play in the yard independently? How stressful is that for you?

17. Overall, how stressful is it for you to allow your child to play with other children in the neighborhood?

18. Overall, how stressful is it for you to deal with your child's relationship with his/her brothers/sisters?

19. Overall, how stressful is it for you to deal with your friends and relatives reactions to your child?

20. Overall, how stressful is it for you to deal with the reactions of the community or the public to your child?

I.D. No. ____

ECBI

Directions: Below are a series of phrases that describe children's behavior. Please (1) circle the number describing how often the behavior currently occurs with your child, and (2) circle "yes" or "no" to indicate whether the behavior is currently a problem for you.

	How often does this occur with your child?							Is this a problem for you	
	Never	Seldom		Sometimes	Often		Always		
1. Dawdles in getting dressed	1	2	3	4	5	6	7	Yes	No
2. Dawdles or lingers at mealtime	1	2	3	4	5	6	7	Yes	No
3. Has poor table manners	1	2	3	4	5	6	7	Yes	No
4. Refuses to eat food presented	1	2	3	4	5	6	7	Yes	No
5. Refuses to do chores when asked	1	2	3	4	5	6	7	Yes	No
6. Slow in getting ready for bed	1	2	3	4	5	6	7	Yes	No
7. Refuses to go to bed on time	1	2	3	4	5	6	7	Yes	No
8. Does not obey house rules on his own	1	2	3	4	5	6	7	Yes	No
9. Refuses to obey until threatened with punishment	1	2	3	4	5	6	7	Yes	No
10. Acts defiant when told to do something	1	2	3	4	5	6	7	Yes	No
11. Argues with parents about rules	1	2	3	4	5	6	7	Yes	No
12. Gets angry when doesn't get his own way	1	2	3	4	5	6	7	Yes	No
13. Has temper tantrums	1	2	3	4	5	6	7	Yes	No
14. Sasses adults	1	2	3	4	5	6	7	Yes	No
15. Whines	1	2	3	4	5	6	7	Yes	No
16. Cries easily	1	2	3	4	5	6	7	Yes	No
17. Yells or screams	1	2	3	4	5	6	7	Yes	No
18. Hits parents	1	2	3	4	5	6	7	Yes	No
19. Destroys toys and other objects	1	2	3	4	5	6	7	Yes	No

I.D. No. ____

20. Is careless with toys and other objects	1	2	3	4	5	6	7	Yes	No
21. Steals	1	2	3	4	5	6	7	Yes	No
22. Lies	1	2	3	4	5	6	7	Yes	No
23. Teases or provokes children	1	2	3	4	5	6	7	Yes	No
24. Verbally fights with friends his own age	1	2	3	4	5	6	7	Yes	No
25. Verbally fights with sisters and brothers	1	2	3	4	5	6	7	Yes	No
26. Physically fights with friends his own age	1	2	3	4	5	6	7	Yes	No
27. Physically fights with sisters and brothers	1	2	3	4	5	6	7	Yes	No
28. Constantly seeks attention	1	2	3	4	5	6	7	Yes	No
29. Interrupts	1	2	3	4	5	6	7	Yes	No
30. Is easily distracted	1	2	3	4	5	6	7	Yes	No
31. Has short attention span	1	2	3	4	5	6	7	Yes	No
32. Fails to finish tasks or projects	1	2	3	4	5	6	7	Yes	No
33. Has difficulty entertaining himself alone	1	2	3	4	5	6	7	Yes	No
34. Has difficulty concentrating on one thing	1	2	3	4	5	6	7	Yes	No
35. Is overactive or restless	1	2	3	4	5	6	7	Yes	No
36. Wets the bed	1	2	3	4	5	6	7	Yes	No

I.D. No. _____

CES-D

During the past seven days, have you felt this way:

0. Rarely or none of the time (less than one day)
1. Some or a little of the time (1 to 2 days)
2. Occasionally or a moderate amount of time (3 to 4 days)
3. Most or all of the time (5 to 7 days)

During the past seven days:	Rarely	Some	Occ	Most
a) I was bothered by things that usually don't bother me.	0	1	2	3
b) I did not feel like eating; my appetite was poor.	0	1	2	3
c) I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
d) I felt that I was just as good as other people.	0	1	2	3
e) I had trouble keeping my mind on what I was doing.	0	1	2	3
f) I felt depressed.	0	1	2	3
g) I felt that everything I did was an effort.	0	1	2	3
h) I felt hopeful about the future.	0	1	2	3
i) I thought my life had been a failure.	0	1	2	3
j) I felt fearful.	0	1	2	3
k) My sleep was restless.	0	1	2	3
l) I was happy.	0	1	2	3
m) I talked less than usual.	0	1	2	3
n) I felt lonely.	0	1	2	3
o) People were unfriendly.	0	1	2	3
p) I enjoyed life.	0	1	2	3
q) I had crying spells.	0	1	2	3
r) I felt sad.	0	1	2	3
s) I felt that people disliked me.	0	1	2	3
t) I could not get "going".	0	1	2	3

I.D. No. ____

DAS

Most persons have disagreements in their relationships. Please circle below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree
1. Handling family finances	1	2	3	4	5	6
2. Matters of recreation	1	2	3	4	5	6
3. Religious matters	1	2	3	4	5	6
4. Demonstrations of affection	1	2	3	4	5	6
5. Friends	1	2	3	4	5	6
6. Sex relations	1	2	3	4	5	6
7. Conventionality (correct or proper behaviour)	1	2	3	4	5	6
8. Philosophy of life	1	2	3	4	5	6
9. Ways of dealing with parents or in-laws	1	2	3	4	5	6
10. Aims, goals and things believed important	1	2	3	4	5	6
11. Amount of time spent together	1	2	3	4	5	6
12. Making major decisions	1	2	3	4	5	6
13. Households tasks	1	2	3	4	5	6
14. Leisure time interests and activities	1	2	3	4	5	6
15. Career decisions	1	2	3	4	5	6
16. Ways of dealing with your hearing-impaired child	1	2	3	4	5	6

I.D. No. ____

		All the time	Most of the time	More often than not	Occasionally	Rarely	Never
17.	How often do you discuss or have you considered divorce, separation or terminating your relationship?	1	2	3	4	5	6
18.	How often do you or your mate leave the house after a fight?	1	2	3	4	5	6
19.	In general, how often do you think that things between you and your partner are going well?	1	2	3	4	5	6
20.	Do you confide in your mate?	1	2	3	4	5	6
21.	Do you ever regret that you married? (or lived together)	1	2	3	4	5	6
22.	How often do you and your partner quarrel?	1	2	3	4	5	6

		Every Day	Almost Every Day	Occasionally	Rarely	Never
23.	How often do you and your "get on each other's nerves?"	1	2	3	4	5
24.	Do you kiss your mate?	1	2	3	4	5

		All of them	Most of them	Some of them	Very few of them	None of them
25.	Do you and your mate engage in outside interests together?	1	2	3	4	5

I.D. No. ____

How often would you say the following events occur between you and your mate?

	Never	Less Than Once a Month	Once or Twice a Month	Once or Twice a Week	Once a Day	More Often
26. Have a stimulating exchange of ideas	1	2	3	4	5	6
27. Laugh together	1	2	3	4	5	6
28. Calmly discuss something	1	2	3	4	5	6
29. Work together on a project	1	2	3	4	5	6

These are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below caused differences of opinions or were problems in your relationship during the past few weeks. (Check yes or no)

	Yes	No	
30.	____	____	Being too tired for sex.
31.	____	____	Not showing love.

32. The dots on the following line represent different degrees of happiness in your relationship. The middle point, "happy", represents the degree of happiness of mo relationships. Please circle the dot which best describes the degree of happiness all things considered, of your relationship.

* * * * * * *

Extremely Unhappy | Fairly Unhappy | A Little Unhappy | Happy | Very Happy | Extremely Happy | Perfect

33. Which of the following statements best describes how you feel about the future of your relationship?

I want desperately for my relationship to succeed, and would go to almost any length to see that it does.

I want very much for my relationship to succeed, and will do all I can to see that it does.

I want very much for my relationship to succeed, and will do my fair share to see that it does.

It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed.

It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.

My relationship can never succeed, and there is no more that I can do to keep the relationship going.

I D No _____

YVONNE	JENNIFER	AMY
People always think that Yvonne is a friend They like talking with her and spending a lot of time with her. She always has lots of people around. She is seldom alone.	Jennifer has friends and is a good person to be with, but she isn't always surrounded by people.	Amy is mostly alone She rarely sees people or spends time with them. She is most often by herself

3 Check one box

☐	☐	☐	☐	☐
I'm like Yvonne	I'm halfway between Yvonne and Jennifer	I'm like Jennifer.	I'm halfway between Jennifer and Amy	I'm like Amy

---

CINDY	PAM	CHRISTINE
Cindy rarely has a close friend that she can count on. She does not know that they will always be there for her to lean on and she does not support them.	Pam sometimes has a close friend who is there for her and who she can count on	Christine always has a close friend that she can count on She does not have to worry about whether they will be there for her to lean on She gives them the same support.

4 Check one box

☐	☐	☐	☐	☐
I'm like Cindy	I'm halfway between Cindy and Pam.	I'm like Pam.	I'm halfway between Pam and Christine	I'm like Christine

I.D. No. _____

MODIFIED KAPLAN SCALE

We would like to know your thoughts and feelings about yourself and the people who matter to you. After reading each set of descriptions please tell me which description best applies to you.

SUSAN	MARY	CAROL
People are devoted to Susan and love her. They always support her, listen to her and sympathize with her. They care about her a lot	People are usually fond of Mary. They can be sympathetic, but do not always listen to her nor support her.	People are not devoted to Carol. They do not support her, listen to her or sympathize with her. They do not care about her or love her.

1 Check one box.

☐	☐	☐	☐	☐
I'm like Susan.	I'm half-way between Susan and Mary.	I'm like Mary	I'm half-way between Mary and Carol.	I'm like Carol

---

ANNE	DEBBIE	LOUISE
People rarely let Anne know that she is wanted. She does not really make a difference to them and they are rarely concerned about her. She does not matter to them.	People sometimes let Debbie know that she matters. Sometimes they think that she makes a difference to them	People constantly let Louise know that she is wanted. She really makes a difference to them. They are concerned about her and she matters.

2. Check one box.

☐	☐	☐	☐	☐
I'm like Anne.	I'm half way between Anne and Debbie.	I'm like Debbie.	I'm halfway between Debbie and Louise.	I'm like Louise

I D. No _____

SARAH	BONNIE	LINDA
People believe that Sarah will make the right decisions and do the right things They have confidence and faith in her	Some people have confidence and faith in Bonnie. Sometimes they think that she will make the right decisions and do the right things.	People rarely believe that Linda will make the right decisions or do the right things. They hardly ever have confidence in her.

5 Check one box

☐	☐	☐	☐	☐
I'm like Sarah	I'm halfway between Sarah and Bonnie.	I'm like Bonnie	I'm halfway between Bonnie and Linda	I'm like Linda

---

TERRY	BETH	SALLY
Terry rarely spends time with other people. When she wants to do things, she hardly ever has anyone do things with her	Beth sometimes spends time with other people. When she wants to do things, sometimes there are other people around to do things wish her.	Sally is almost always with other people. Whenever she wants to do things, she knows that one or another of her friends will be there to do things with her

6 Check one box

☐	☐	☐	☐	☐
I'm like Terry	I'm halfway between Terry and Beth	I'm like Beth	I'm halfway between Beth and Sally	I'm like Sally

I.D. No. _____

JOANNE	MICHELLE	GRACE
Joanne knows that people care a lot about her. She has their attention and support.	Michelle sometimes has people's attention and support. She sometimes feels that they care about her.	Grace is uncertain that people care about her. She gets little attention or support.

7 Check one box.

☐	☐	☐	☐	☐
I'm like Joanne.	I'm halfway between Joanne and Michelle.	I'm like Michelle.	I'm halfway between Michelle and Grace.	I'm like Grace

---

PATRICIA	SHANNON	KATIE
Patricia is rarely admired and praised There are very few people who think Patricia is important and worthy	Shannon is sometimes admired and praised by some people. She is not always being reminded of her worth.	Katie is constantly being admired by people. They always praise her and think that she is important and worthy

8. Check one box.

☐	☐	☐	☐	☐
I'm like Patricia	I'm halfway between Patricia and Shannon.	I'm like Shannon.	I'm halfway between Shannon and Katie.	I'm like Katie

I.D. No. ____

DONNA	LAURA	KAREN
Donna does not have a lot of different people to lean on. She does not belong to a group of people who know each other and who would help one another when needed.	Laura sometimes has people she can lean on. She belongs to a group of people who sometimes help one another when needed.	Karen knows that there are a lot of different people she can lean on. She belongs to a group of many people who know each other and who always help one another out when needed.

9 Check one box.

☐	☐	☐	☐	☐
I'm like Donna.	I'm halfway between Donna and Laura.	I'm like Laura.	I'm halfway between Laura and Karen.	I'm like Karen

ENDURANCE

A - Stick-to-itiveness, patience, follow-through

- I don't have a great deal of patience when it comes to doing the same thing over and over again with my child.

+ Even when my child does not want to do something he/she should, I keep on working at it.

- I get so frustrated working with my child that I will let a lot of time go by before I do any more work with _____.

- There are times when I feel that I'm getting nowhere with ____ and give up.

+ Even though I'm busy, I spend some time each day working with my child on language activities.

- Even though I've had a few sign language lessons, I don't have the patience to practice it.

+ No matter how busy I am, I always find time for appointments with the audiologist and/or speech therapist.

+ Even though I find sign language difficult, I use it every chance I get.

+ Even though I'm busy, I take the time to understand what my child is trying to say.

- I don't believe in sticking to language programs when I don't know how successful they will be.

+ I don't mind spending a lot of time helping ____ learn something new.

- When things get hectic, my child's hearing aids are put aside.

+ No matter what, I always make sure my child is wearing his/her hearing aid.

B - Problem-solver

+ When my child doesn't understand something, I use many different ways to get the idea across.

+ When ____ and I run into problems, I don't stop until we have found a answer.

+ When I have questions about my child's disability, I spend whatever time it takes to find the answers.

D - Sense of long-term commitment

+ Even though it is difficult for me, I know that I will work with ____ for years to come.

- If things become too discouraging for me, I will have to make other arrangements for my child's care.

E - High energy level

- I often feel that I cannot work this hard with my child for another day.

- The work involved in raising my child leaves me feeling drained most of the time.

+ I have a lot of energy when it comes to doing things with _____.

- I don't have the energy to communicate most things to my child.

- I often feel I'm just too tired to explain things to ____.

+ I always seem to find the necessary energy to try something with my child once more.

- I am usually too exhausted to spend any extra time with my child.

VITA

NAME: Alexandra L. Quittner

PLACE OF BIRTH: Los Angeles, California

YEAR OF BIRTH: 1954

POST-SECONDARY EDUCATION:

North Carolina School of the Arts
Winston-Salem, North Carolina
1974-1977 B.A

Florida State University
Tallahassee, Florida
1978-1980 M.A

University of Western Ontario
London, Ontario, Canada
1983-1987 Ph.D.

SCHOLARSHIPS AND AWARDS:

Florida State University Student Scholarship 1978-1980

Ontario Graduate Scholarship 1984

Social Sciences and Humanities Research Council of Canada Doctoral Fellowship 1985-1987

Ontario Ministry of Health Post-doctoral Research Fellowship 1987-1989

RESEARCH GRANTS:

March of Dimes Birth Defects Foundation, White Plains, New York: "Moderating stress in mothers of children with seizure disorders: The effects of social support and personality variables" (no. 12-174). March 1986 - March 1988 (with D.N. Jackson).

Ontario Mental Health Foundation, Toronto, Canada: "The effects of social support and personality variables on maternal adaptation to the stress of a hearing impaired child" (no. 949-86-88). April 1986 - March 1987 (with R.L. Glueckauf).

Centre for Communication and Cognitive Disabilities, University of Western Ontario, London, Ontario. September 1986 - March 1987.

RESEARCH AND ACADEMIC EXPERIENCE:

Ministry of Health Research Fellow
Department of Pediatrics
University of Western Ontario
1987-1989

Co-Investigator of the Family Support Project
Department of Psychology
University of Western Ontario
1986 to date

Instructor
Department of Psychology
University of Western Ontario
1987

Research Coordinator
Department of Psychology
University Hospital
1984-1986

CLINICAL EXPERIENCE:

Psychology Intern
Department of Psychology
Children's Hospital of Western Ontario
1986-1987

Consultant
Department of Psychology
Children's Psychiatric Research Unit
1985-1986

PUBLICATIONS:

(1) Quittner, A.L. & Glueckauf, R.L. (1983). The facilitative effects of music on visual imagery: A multiple measures approach. Journal of Mental Imagery, 7, 105-120.

(2) Quittner, A.L. & Glueckauf, R.L. (1983). Visual imagery production: A comparison of evocative conditions. In A. Ahsen, A.T. Dolan, & C.A. Jordan (Eds.), Handbook of imagery research and practice. New York: Brandon House.

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