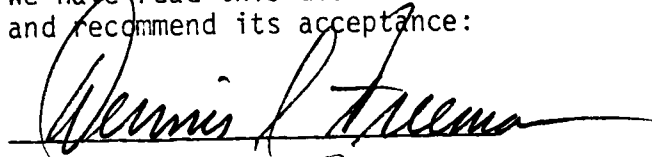


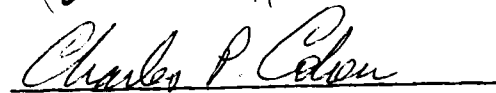
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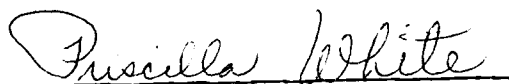
I am submitting herewith a dissertation written by Robert Monroe Soule, Jr. entitled "Maternal Social Networks and Cognitive Development of Preschool Children: An Hypothesis and Exploratory Study of Rural Appalachian Families." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.


Robert G. Wahler, Major Professor

We have read this dissertation
and recommend its acceptance:







Accepted for the Council:


Vice Chancellor
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MATERNAL SOCIAL NETWORKS AND COGNITIVE DEVELOPMENT OF
PRESCHOOL CHILDREN: AN HYPOTHESIS AND EXPLORATORY
STUDY OF RURAL APPALACHIAN FAMILIES

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ABSTRACT

In this study the patterns of maternal social networks and child cognitive abilities were examined in rural Appalachian families. The families studied were all participating in an intensive program of early childhood intervention, and were mostly of lower socioeconomic status (SES). Previous research has shown patterns of maternal social network to be related to problems of child behavior and maternal functioning. This study proposed and tested the hypothesis that the social network patterns of mothers would be significantly related to the cognitive abilities of their children, as measured by a standardized test. A secondary purpose of the study was to study the maternal social network patterns in this rural population.

The primary hypothesis relating child cognitive abilities to patterns of maternal social network was not supported by the evidence of this study; no significant correlations were found between these two variables. The cognitive test scores of these children approximated a normal distribution and showed little relationship with any of the other variables studied, other than family income and parents' levels of education. The overall pattern of test scores for this sample was noted to be lower than that for the national sample on which the test was standardized; this was attributed primarily to the previously reported correlation between SES and cognitive test scores.

The analysis of the social network patterns of the mothers in this study revealed that these networks tended to be relatively small and tightly knit, with a predominance of kin over friends and others in

frequency of contacts. Unlike some urban samples previously noted to have this type of network, these mothers were found to view their networks as generally positive, which suggests some basic differences between these samples in their orientations to their social networks as support systems. This finding also tends to support the importance of kin relations as a central aspect of rural Appalachian culture. Factor analysis of the data on maternal social networks revealed three distinct patterns of interaction, associated with the different relationship categories of kin, friend, and other. These factor patterns and their relationships with other variables were also examined.

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CHAPTER I

INTRODUCTION

Recent years have seen the development of new approaches to understanding human development and functioning. Research in a number of diverse areas has produced findings relevant to the multiple problems of individuals and families of low socioeconomic status (SES). In some areas, these research findings have been applied in intervention programs aimed at alleviating the problems of this population and interrupting the continuous cycle of poverty. Unfortunately, many of the straightforward attempts at intervention with troubled lower-SES populations have failed to have the expected results. The discovery of connections between patterns on very different levels of functioning has indicated the complexity of many of these problems, suggesting that previous interventions may have focused their efforts prematurely in some cases, missing crucial aspects of the overall situation. Several areas of study have produced findings relevant to the problems of cognitive development observed in the children of poor families in rural Appalachia; these include not only the study of cognitive development itself, but also research on the structure and functions of social networks, the importance of kinship relations, the specific difficulties of "problem families," and the cultural patterns of family interaction and child rearing in this area.

The study of cognitive development has made great advances during the past 50 years, as social and scientific forces have

combined to encourage the development of more comprehensive theories to explain this complex process. Empirical findings such as the research of Skeels and his colleagues (Skeels, Updegraff, Wellman, and Williams, 1938; Skeels, 1966) have challenged the earlier view of intelligence as a fixed aspect of human personality, developing in predetermined patterns and independent of environmental influences. Such findings have stimulated researchers to look more closely at the environmental factors influencing cognitive development, particularly during its earliest stages. The development of new theories, such as that of Piaget (1952) has clarified the ways in which hereditary and environmental factors interact to promote the growth of cognitive abilities. Investigators such as White (1975) have pursued detailed empirical studies to record and analyze the processes of development during infancy and early childhood.

One aspect of cognitive development and intelligence which has interested a number of researchers has been the significant positive correlation found between SES level and cognitive abilities (Deutsch, 1973). A number of studies have shown evidence that the lower levels of cognitive abilities in poverty level families may be strongly related to a pattern of environmental factors including poor health care and nutrition, increased emotional stress, and certain child rearing practices (Chilman, 1974). The increased awareness of both the importance of early experience for cognitive development and the detrimental effects of poverty on such development has led to the implementation of early childhood intervention programs. Such programs, aimed at improving the cognitive development of children,

particularly in lower-SES families, have taken many forms and shown varying degrees of success (Comptroller General of the United States, 1979).

The study of social networks and their importance in the functioning of individuals and families has also been a major focus of research and writing in recent years. While social scientists have long recognized the importance of kin relationships and other social contacts outside of the family, the nuclear family has been the primary focus of study in American society, due both to its structural isolation in our kinship system and to the disruption of localized kin interactions caused by an increasingly urban, mobile economy (Parsons, 1943). However, it has become increasingly clear that the social network of an individual's relationships beyond his immediate family is also extremely important, even in modern society. Caplan (1974) has noted the importance of such a network of relationships in its function as a "support system" for the individual, showing evidence that disruption of this aspect of the social network is directly associated with physical and emotional breakdown on the individual level.

Numerous investigators have analyzed patterns of interaction within social networks, attempting to understand how such interactions are related to the functioning and problems of individuals and their families. Some, such as Sussman (1953) have focused specifically on the nature and effects of kin relations, emphasizing the continued importance of kin in modern society. Others have compared the functions of different types of relationships within social networks

(Litwak and Szelenyi, 1969). Meanwhile, clinicians such as Ackerman (1959) and Bowen (1978) have examined the relationships between family patterns and individual psychological problems. Speck and his associates have gone so far as to widen their therapeutic focus to include the entire social network of a patient in his or her therapy (Speck and Attneave, 1973).

In their behavioral interventions with families of oppositional children, Wahler and his associates have observed a specific pattern of maternal social network which they have characterized as "insular" (Wahler, Leske, and Rogers, 1979). This pattern of social network and associated problems of family functioning are consistent with the descriptions of socially isolated "problem families" in lower-SES populations studied by many others, such as Geismar and LaSorte (1964). This type of network has been noted to be negatively correlated with success in family treatment of child behavior problems, and has also been found to be associated with several different problems in maternal functioning, such as depression and poor observational abilities (Dumas, 1979; Wahler and Afton, 1979).

In addition to these general areas of research relevant to the problems of lower-SES families, there has been specific attention to the functioning and problems of families in rural Appalachian culture. A number of investigators have observed the importance of the kin network and the functions of "familism" in this culture (Weller, 1965). It has been suggested that this heavy emphasis on the kin network in rural culture represents a way of coping with the stresses and isolation of rural poverty (Heller, 1976). Perhaps as a result of

such stresses, the mothers in rural Appalachian families at lower SES levels have often been noted to show attitudes suggesting depression and resignation (Coles and Coles, 1978). Writers such as Coles (1967) have studied the implications of Appalachian culture and child rearing practices, in terms of both emotional and cognitive development.

As these different areas of study are explored, it becomes apparent that there are major themes relating them. In particular, it appears that social networks differ in particular ways which affect their abilities to function as support systems for individuals. Since such networks differences have been found to be associated with problems in maternal functioning, it is possible that the social network patterns of mothers might provide an important link in the understanding of conditions leading to deficient cognitive development in the children of many families at lower SES levels. If this is so, then working with mothers and their social networks might need to be given a higher priority in programs aimed at improving cognitive development. A review of the literature in several relevant areas is presented in the following chapter.

CHAPTER II

REVIEW OF THE LITERATURE

I. EARLY COGNITIVE DEVELOPMENT: THEORIES AND INTERVENTION

Throughout history there has been a debate over the relative contributions to human development made by heredity and environment. The development of the mental testing and eugenics movements in the late 19th century tended to reinforce theories of cognitive development which viewed intelligence as a fixed aspect of human personality determined almost entirely by hereditary factors (Hunt, 1961). Such theories suggested that the child's intelligence would unfold naturally, as a part of physical maturation, without specific requirements for input from the environment (beyond the obvious requirement for physical survival). However, with the growth of psychology and child development as fields of study, evidence began to accumulate indicating the importance of environmental factors in the process of cognitive development. An early example of this was the work of the Iowa group (Skeels, Updegraff, Wellman, and Williams, 1938; Skodak and Skeels, 1949) with institutionalized infants; these studies provided strong evidence of the impact that different types of caretaking could have on later cognitive development.

During the middle decades of this century, new developmental theories, such as that of Piaget (1952, 1954; Flavell, 1963) began to stimulate different approaches to the study of cognitive development in early childhood and infancy. Attempts were made to understand

factors affecting cognitive development and the reasons that some children lag behind without any physiological bases for such deficits. Researchers such as Rheingold (1956) and Spitz (1965) examined and clarified the disastrous effects of "maternal deprivation" in infancy, not only in terms of emotional and physical development, but also in its effects on future cognitive abilities. Further empirical support for theories emphasizing the importance of environment in cognitive development came again from Skeels (1966), when he reported a 30 year follow-up on his original infant study. This study showed dramatic differences in the cognitive abilities and social functioning of his sample to be directly related to the type of experience they had been exposed to as infants.

In recent years researchers have investigated patterns of development during infancy and early childhood in greater and greater detail, utilizing increasingly sophisticated technology. The results of such studies as that by Condon and Sander (1974) have shown that humans are responsive to complex patterns of social and verbal stimulation in their environment from the time of birth. Other researchers, such as White, have made longitudinal analyses of cognitive development, attempting to map out the successive phases of such development through infancy and early childhood (White and Watts, 1973). A major goal of these researchers has been to clarify the environmental factors most crucial to development at each point, following the biological concept of "critical periods." According to this view of development, the organism not only is attuned to specific types of stimulation at different stages of development, but also requires these

types of experience to develop normally. During the 1970's this approach to development had become widely enough known and accepted to lead some researchers (White, 1975; Caplan, 1973; Caplan and Caplan, 1977) to write books for the general public, providing detailed guides to infant cognitive development and making suggestions for parental interventions to maximize their child's potential.

During the 1960's, changes in the social and political climate of the United States led to an increased awareness of continued presence of poverty in this society and its pernicious effects on those who live in such conditions. Many investigators began to look more closely at the positive relationship which had been observed between socioeconomic status (SES) and intellectual ability, as measured both by IQ scores and academic achievement (Deutsch, 1973). This relationship between SES and IQ was found consistently, with differences in mean IQ scores of more than 20 points noted between middle and lower SES groups in some studies (Pilling and Pringle, 1978). Lesser, Fifer, and Clark (1965) studied the intellectual abilities of children in different ethnic groups, and found that the SES-IQ relationship held across the different ethnic groups in their study, despite minor differences in specific areas of strength for the various groups. In attempting to understand this relationship between SES and IQ, investigators have emphasized a number of related aspects of poverty, including poor health care and nutrition, stressful emotional and social interactions, and levels of stimulation which are either deficient or excessive for optimal development of cognitive skills (Hurley, 1969; Birch, 1972).

Another line of investigation was suggested by the previous research on the crucial importance of the maternal relationship in cognitive development. This approach has led to a number of studies of the child rearing practices of mothers in families at different SES levels. Marans and Lourie (1973), Chilman (1974), and many others have suggested that a "culture of poverty" is perpetuated through the child rearing approach noted in lower-SES families. Specifically, parents in families at this SES level (relative to parents in middle-SES families) have been noted to show low levels of verbal interaction with their children, a lack of positive child-centered attention, a frequent use of physical punishment, and an emphasis on obedience and quietness, at the expense of the child's exploration of his environment. Hess and Shipman (1965) studied the "teaching styles" of mothers with their young children, and found a positive relationship between SES level and the amount of verbal interaction with the child. This relative lack of verbal interaction in parent-child relationships in lower-SES families has been examined further by others (Taylor, 1979), and appears to be closely associated with the lower levels of intellectual ability reported for this population.

In his review of research on the relationship between SES and cognitive abilities, Lewis (1967) emphasized a different aspect of the experience of the child. He proposed that a crucial element in cognitive development is the motivation to learn, which must be developed early in life. In Lewis's view, such motivation can only come with the experience (and subsequent feeling) of having the power to affect one's environment. He notes that one common characteristic

of parents in families at the lowest levels of SES is an attitude of "learned helplessness" which can lead to depression and apathy. He proposes that the children in such families learn this type of attitude as infants, through interactions with their parents in which their early attempts to affect their environment often meet with indifferent or punitive responses.

One major implication of the shift toward emphasizing environmental influences on cognitive development was the idea that the lower levels of ability associated with poverty might be more amenable to change than previously suspected. As Hunt (1969) noted, this was not a new idea, for history has recorded numerous attempts to shape and improve individuals through organized approaches to child rearing. However, the social and political climate of the United States during the 1960's was such that the idea of utilizing early childhood intervention programs in the "War on Poverty" was given major governmental support. Much research and writing was devoted to the development of such programs, examining not only issues of curriculum and presentation of material (Kohlberg, 1972), but also questions about such issues as location of the program, degree of parental involvement, and other variables (Hunt, 1969). Writers such as Scheinfeld, Bowles, Tuck, and Gold (1970) emphasized the need for parental involvement in such programs, and Chilman (1973) went even further, citing evidence to suggest that long-term impact on the development of children would come only from programs which included home visits and assistance for parents in dealing with the realistic problems of poverty.

A number of smaller early childhood intervention programs were started by researchers around the country during the late 1950's and early 1960's. Horowitz and Paden (1973) reviewed the development and effects of a number of the earlier preschool intervention programs, such as the Early Training Project (Klaus and Gray, 1968) and the Ypsilanti-Perry Preschool Project (Weikart, 1971). Evaluations of the poor children participating in these small, intensive programs showed positive gains in IQ scores in comparison to peers who had not participated. Several large-scale, national programs for early childhood intervention were also started during this period, including the largest of all, Head Start. Working with almost a half million children in its first year (1965), Head Start focused on the improvement of both cognitive development and health care, utilizing a nursery school type of format. The first evaluation of Head Start was somewhat mixed, appearing to show little change in cognitive ability of the children who participated during the first few years (Westinghouse Learning Corporation, 1969). However, this early study has been widely criticized as premature and methodologically weak, and subsequent follow-up studies (Lazar, 1977; Lazar and Darlington, 1978) have reported significant positive gains in cognitive abilities and school achievement by Head Start "graduates." A recent review reported on the results of a number of large, federally funded programs for early childhood intervention with poor children; this included not only Head Start, but also programs such as Home Start, Child and Family Resource Program, and many others (Comptroller General of the United States, 1979). This report cited numerous studies showing positive results

from such programs, and urged their continued funding. More recently, evidence was provided that the effects of such programs can be long-lasting, as Gray, Ramsey, and Klaus (1982) published a 20 year follow-up study on the Early Training Project. The most striking finding of this study was that for females, participation in the program as preschoolers was significantly related to an increase in both the quantity and the quality of education achieved through the age of 20.

The Child Health and Development Project (CHDP) of the East Tennessee Department of Public Health is the program within which the present study was conducted. It is a comprehensive home-based program which was modeled in part after the Early Training Project (Klaus and Gray, 1968). Established in 1973 with a grant from the Appalachian Regional Council, the CHDP shifted to Title XX funding in 1977, making its orientation almost entirely towards a low-income population. The CHDP serves five rural counties in East Tennessee, and referrals come from the Tennessee Department of Human Services, the Public Health Service, and word-of-mouth. Participation in the program is voluntary. The basic philosophy of the CHDP is the idea that the child can best be helped in his or her development by teaching the parents improved parenting skills in the context of the home, since "the parent is the child's first and most important teacher" (Banta, Higginbotham, and Levin, 1979, p. 1). Within this framework, the CHDP has set itself seven goals:

1. providing well-child care,
2. preventing continuation or aggravation of developmental delays,
3. providing in-home education,
4. promoting positive parent-child interactions,

5. promoting preventive health care,
6. decreasing social isolation of project families, and
7. serving as an advocate for the families with the community (Banta, Higginbotham, and Levin, 1979, pp. 2-3).

Goal number 6 is of particular interest in this current discussion, since it will be seen to tie in with other areas of the literature relevant to this present study. During the recent evaluation of the CHDP, it was noted that this particular goal has proven "harder to define, implement, and evaluate" than any of the others (Banta, Higginbotham, and Levin, 1979, p. 48).

During the seven years of CHDP's operation prior to the present study, workers in the project have observed that the program seems to have a positive impact on many of the families, both in terms of child care and overall functioning. However, it has also been noted that some project families have been unaffected by all efforts to engage them, leading to tremendous expenditures of worker time and effort over long periods of time (years in some cases) with minimal effect. The frustration of working with such families has sometimes pushed workers to the point of "burn out." Factors relating to this type of family and their special problems will be discussed next.

II. SOCIAL AND PSYCHOLOGICAL INTERVENTIONS WITH "PROBLEM FAMILIES"

In the long history of attempts by sociologists, social workers, and psychologists to understand and work with those in the poorest levels of society, many have noted that the family's structure and ways of interacting appear to play a role in the cycle of continuing poverty.

Early in this century, the "broken home" was often cited as a primary source of social pathology by sociologists (Queen and Mann, 1925). In the 1940's, during the resettlement of families necessitated by the bombing of London, British social workers commented on a certain type of family with numerous social, financial, emotional, and health problems; these came to be known as "problem families" (Handler, 1973). In the United States, a similar discovery was made in the 1950's, when a number of social workers began to write about this type of family, which Geismar and La Sorte (1964) called "multi-problem families." Such families were characterized by social disorganization leading them to exhibit high rates of deviant behavior, frequent crises, disrupted relations with the community, chronic dependence on welfare agencies, and resistance to change. Other names given to this type of family have included "deprived," "crisis-oriented," "hard-to-reach," "hard core," and "malfunctioning" (Nye and Berardo, 1973).

The approach to social intervention with such families recommended by most writers has focused on attempts at long-term intensive casework, in which the worker establishes trust and becomes a "bridge" to link the family with the community (Geismar and La Sorte, 1964; Orcutt, 1977). In order to gain access to such families, many writers have suggested home-based intervention is necessary (Scheinfeld, Bowles, Tuck, and Gold, 1970). Unfortunately, however, such intensive treatment requires extremely high levels of worker involvement and agency support in most cases, often leading to chronic client dependency and worker "burn out."

Recently, a number of investigators have begun to focus specifically on the nature, causes, and effects of the social isolation in which such families live. Tierney (1976) described such families as "excluded families," emphasizing the social rejection suffered by children in lower SES levels as the cause of their rejection of the community as adults. Polansky, Chalmers, Bittenweiser, and Williams (1979) have found that such social isolation is often characteristic of families in which the children are neglected. They suggest that this isolation may be a reflection of the sense of apathy and hopelessness predominant in these parents. Gottlieb (1979) has emphasized that the "distrust and alienation" of such families may be a reasonable defensive maneuver in some situations, given the deprived and often hostile environments in which they live.

Wahler and his associates have taken this analysis a step further. In their work using a social learning approach to treat families of children with behavior problems, this group noted that the mothers in the most difficult families, where treatment gains were not maintained, tended to have a consistent pattern in their social networks (Wahler, Leske, and Rogers, 1979). These mothers showed patterns of interactions with others which suggested that they were trapped in basically unsupportive, coercive social networks which limited their contacts outside of the family and in effect "insulated" them from outside assistance. This pattern of maternal social network was thus characterized as "insular," and noted to include generally reduced social contacts, very few friend relationships, heavy reliance on kin and social agencies, and generally neutral to negative feelings

about daily social contacts (Wahler, Leske, and Rogers, 1979).

Subsequent studies by this group have consistently shown this positive relationship between the insular pattern of maternal social contacts and treatment failure (Wahler, 1980; Dumas and Wahler, in press).

Other aspects of maternal functioning have also been associated with the insular pattern of social network. Wahler and Afton (1979) examined the cognitive styles of mothers in such families, finding them to be significantly less attentive and more global in their perceptions of their children's behavior. An interesting study which appears related to this finding was that of Griest, Wells, and Forehand (1979), who found that the degree of a mother's depression was a better predictor of the degree of maladjustment she reported in her child than was the child's actual behavior (as rated by independent observers). Wiggins (1978) studied child-rearing attitudes of mothers found to be isolated from their communities, and found them to be significantly less confident about their ways of dealing with their children than less-isolated mothers. Wahler, Hughey, and Gordon (1981) found that mothers with insular networks tended to use much more punishment and coercion in their interactions with their children. Dumas (1979) and Belle (1981) have both reported that mothers with social networks approximating the insular pattern tend to report more depression than other mothers.

In a recent review of the problems which appear to be associated with insularity, Wahler and Dumas (1981) have outlined a pattern of disrupted maternal functioning which integrates some of the

findings cited above. They note that the insular pattern of social network appears to be closely related to maternal depression, and suggest that this depression is aggravated by the restricted, unsupportive, and coercive nature of such mothers' social interactions. This depression appears to be a contributing factor in the imprecise, often distorted perceptions such mothers have of their children's behavior. The combination of these factors appears to lead to the more coercive, less productive patterns of interaction between such mothers and their children, and to their lack of confidence as parents. These authors go on to emphasize the importance of a mother's "motivation to teach" as a necessary ingredient for success as a parent. They also suggest that problems with such motivation are likely to have adverse effects on not only the maternal interactions with the child around emotional, social issues (which are the focus of their research), but also on aspects of the parental relationship affecting cognitive development.

III. KINSHIP NETWORKS AND THEIR SIGNIFICANCE IN MODERN SOCIETY

The study of the relationships between individuals and their kin (those related to them by blood or by marriage) has generally been the province of anthropology. This has been true partly because this type of relationship often figured centrally in the organization and functioning of the smaller, more prescriptive cultures studied by anthropologists during the late 19th and early 20th centuries. In addition, sociology has tended to look at modern society as changing

inexorably in the direction of greater diffusion and complexity in relationships, away from a traditional, local "primary group" organization. Parsons first presented an anthropological description of the contemporary kinship system in the United States in 1943, emphasizing the adaptability of such a bilateral open system to this country's industrial economy (Parsons, 1943). He noted that the independent conjugal unit (the "nuclear family") is a structurally isolated unit in this system, allowing it much more mobility than in other kinship systems. Since that time, there has been much interest in the question of how important kin relationships are in modern society, and numerous investigators have studied this issue (Leslie, 1967; Farber, 1974).

Sussman and his associates have argued in a series of papers (Sussman, 1953, 1959, 1970; Sussman and Burchinal, 1962) that the "kin family network" remains a central aspect of family life in modern America, providing services, material and financial aid, and social activities, for individuals. Sussman does not argue that this system functions with the tight prescriptiveness of the kinship system in a more traditional society, but describes it as a "voluntary social organization" based on norms of exchange (Sussman, 1970). Taking issue with this view, Gibson (1972) has pointed out that Parsons' original description of the nuclear family does not state that the family is functionally isolated, but only that it is the basic structural unit and primary functional group in American kinship, a point which Parsons himself has clarified (Parsons and Bales, 1955;

Parsons, 1971). Gibson then reviews extensive data which suggest that the kin network is of primary importance only to those in modern society who are not part of a viable nuclear family unit (Gibson, 1972). Lopata (1978), studying the support systems of widows, found evidence leading her to agree with Gibson that the importance of kinship ties in modern society is generally secondary. Nonetheless, the relative importance of the nuclear family and the extended kinship network in modern society continues to be argued, as in a recent article by Uzoka (1979). This article argues that the concept of the nuclear family as an independent unit became an ideal in western society during the periods of widespread resettlement necessitated by industrialization, and that it represents a defense mechanism (on a cultural level) against the pain and isolation caused by the loss of extensive kinship contacts. Uzoka feels that this ideal has distorted subsequent western analyses of the family, and he urges clinicians and researchers to adopt a more extensive view, looking beyond the nuclear family.

A number of other investigators have examined patterns of kinship interaction in modern society. Rosenberg and Anspach (1973) examined the adaptations of kinship structures to urban society in a working class group, and found that while interactions focused primarily on the nuclear family, there were also frequent contacts with the families of origin. Klatzky (1972) and Mogey (1976) both examined patterns of family interaction with kin, and found that geographic distance appeared to be just as important as genealogical distance in

determining frequency of contacts. In his review of recent research on kinship, Lee (1980) reported that rural families generally have higher frequencies of kin contacts, regardless of SES level, while there has been a significant negative correlation reported between SES and amount of kin contact in urban populations. In his view, this relationship between SES and kin contacts in urban populations is due to the greater proximity and interdependence of families at lower SES levels.

Finally, there have been investigations and interventions in this aspect of family functioning by a number of clinicians. Ackerman (1959) emphasized the fact that kin relationships can have a significant stress-increasing effect on individuals and families. Leichter and Mitchell (1967) performed an extensive study of the involvement of social agency clients with their kin, noting that kin relationships appeared to serve both positive and negative functions in clients' attempts to cope with problems. Utilizing a psychodynamic model, Bell (1970) proposed a number of ways in which the problems of disturbed families are manifested in their relations with kin. Boszormenyi-Nagy and Spark (1973), Bowen (1978), and Minuchin (1974) have all pointed out ways in which conflicts tend to be transmitted through extended families and down through generations by means of complex combinations of both internal psychological processes within individuals and patterns of expectation and interaction in families. The most direct approach to dealing with the potential of kinship networks to disrupt or support families has been that of Speck and his associates (Speck,

1967; Speck and Attneave, 1973; Rueveni, 1979). This group has carried their therapeutic approach past the level of the individual family to the level of the "network," involving the kin group and significant others in therapy sessions directly. The goal of this approach is to mobilize the positive, supportive aspects of the extended relationships within the network and help the family to escape its closed pattern of self-destructive interactions. This leads us beyond the area of kinship relations to the broader subject of social networks and support systems.

IV. SOCIAL NETWORKS AND SUPPORT SYSTEMS

The concept of "network" has been borrowed from topology and used metaphorically by social scientists to illustrate and understand human interactions. An early use of the network concept in such a context was Moreno's development of the "sociogram" to illustrate patterns of relationship in small groups (Moreno, 1934, 1951). During the 1950's this concept was utilized by Bott and her colleagues, who studied the networks of social relationships of London families, discovering that the degree of "connectedness" of a family's network was related to the pattern of conjugal roles adopted by the couple (Bott, 1957). A different approach to this concept was taken by Mitchell and his associates in their study of patterns of relationship in African towns (Mitchell, 1969). Exploring the social network as an approach to understanding and dealing with problems in the human services, Sarason and his colleagues formed and studied their own

inter-university network (Sarason, 1977). While the network concept has clearly stimulated new approaches to studying and understanding social systems, Barnes (1969) suggested a need for caution in its use, stressing the need for consistent terminology. From a different angle, Wellman (1981) has also urged care in the use of this concept, noting that his study of English families has shown social networks to be extremely complex, often involving asymmetrical and multiplex ties which require detailed analysis.

With the increasing emphasis on understanding the behavior of individuals in the context of their social environment, more attention has been paid in recent years to specific functions of the individual's social network. A central concept which has been developed to describe a crucial function of the social network is that of the "support system" (Caplan, 1974). In his development of this concept, Caplan has cited studies showing the detrimental effects of crisis (Lindemann, 1944) and exposure to consistently high levels of stress (Cassel, 1974) on both physical and mental health. A key fact noted in such studies was that some individuals' social networks appear to provide a "buffer," protecting them from the damaging effects of excessive stress. Discussing this protective function of social networks in terms of "social support," Cobb (1976) cited numerous medical studies indicating the strong relationship between many types of health problems and the lack of such support in one's environment. In another context, Caplan has examined the specific needs filled by such a support system for the individual: material aid, identity affirmation, feedback, ideology,

information about the world, and a "haven" from stress (Caplan and Killilea, 1976).

In discussing the structure of support systems, Caplan (1974) has noted that many different types of relationships may be involved. He observes that the family and kin network of the individual are usually the primary components of his support system, but also notes that important roles are played by friends, neighbors, "informal caregivers," religious congregations, and other types of voluntary organizations. Weiss (1969) has emphasized the fact that such different types of relationships are not reducible to quantitative terms in their contributions to the individual, and he urges the analysis of their qualitative differences. A similar note of caution was suggested by Unger and Powell (1980), who recommended that researchers attend to the "situation specificity" of different aspects of the social networks of individuals.

A number of investigators have looked at patterns of "help-seeking" behavior to see how different types of relationships contribute to individuals' support systems. Young and Wilmott (1957) found that working class London families received most of their help from their kin networks, having very little contact with formal sources of assistance. McKinlay (1973) found similar results in studying the use of a prenatal service program in Scotland. Examining the differential functions of kin, friends, and neighbors in the United States and Hungary, Litwak and Szelenyi (1969) concluded that all three types of relationships have important and distinct functions for the individual, suggesting that all three are necessary to provide a

comprehensive support system. Croog, Lipson, and Levine (1972) analyzed the sources of support utilized by urban men after a heart attack, and found that the most important relationships were family, followed by friends and neighbors, then relatives, and finally formal institutional supports. In her review of the literature, Gourash (1978) consistently found similar patterns of utilization of different types of relationships in seeking help, and she also noted the importance of the social network as an initiator of referrals for professional help. An interesting study of different types of help-seeking behavior and their adaptive consequences after the fact was done by Lieberman and Mullan (1978). This study examined the levels of adaptation of groups which had coped with similar crises by one of three means: seeking professional help; utilizing informal, network resources; or seeking no help at all. No significant differences in the levels of adaptation were found between the groups, suggesting that individuals utilize their social networks in very different ways, depending on their own needs.

In attempting to understand how social networks function as support systems, some investigators have studied groups which appeared to have difficulties in maintaining or utilizing effective support systems. Trufant (1977) found that in some cases the kin networks of single mothers appeared to interfere with their relationships with their children. Also studying young mothers, Belle (1981) found that their social networks were viewed not only as a source of support, but also as a major source of stress in some cases, especially by those

mothers with higher density networks, who reported more depression than other mothers. Rogers (1979) found that "high risk" groups of family therapy clients experienced their social networks as more obligatory, kin-dominated, and less helpful than did comparable "low risk" groups. Tolsdorf (1976) reported a comparison of the nature and utilization of social networks of medical and psychiatric patients: the psychiatric population showed a negative orientation toward their networks as sources of help, whereas the medical population showed a much more positive orientation. This difference in orientations toward their networks was found to have some basis in the nature of the networks of the two populations, since the networks of the psychiatric population were described as more family-dominated and controlling of the patients, with few friends included. Hirsch (1981) cited evidence indicating that the density of social networks appears to be negatively correlated with mental health. The previously cited work of Wahler and his associates (e.g., Wahler, Leske, and Rogers, 1979) on the insular pattern of social network they have noted in their samples is also consistent with these findings.

Such findings on the variability of social networks in their ability to function as an effective support system for the individual has prompted Gottlieb (1981) to emphasize the complexity of such networks. He notes that social networks offer both supportive and destructive potentials for the individual, and cautions that the concepts of social network and support system, while related, are not at all identical. The closed, dense nature of the unsupportive networks observed in many of the studies is addressed by Wellman, who

points out that: "Densely-knit, bonded, solitary networks seem to enhance the ability of the relatively powerless to conserve and control their existing internal resources: they mobilize help quickly throughout the network. . . . At the same time, their tight boundaries limit the ability of members to acquire additional external resources" (Wellman, 1981, p. 191). While such a dense pattern of network functioning would not necessarily lead to the unsupportive pattern observed in these studies, it would clearly tend to isolate an individual with such a problematic network from other sources of help. The issue of this unsupportive quality found in some networks is examined by Eckenrode and Gore (1981), who suggest that the effectiveness of a social network's functioning as a support system is directly related to the overall level of stress within the system. Thus, such unsupportive networks not only reflect the stressful situations in which the individual members live, but also tend to weaken their already diminished abilities for coping with stress.

With the importance of support systems for the maintenance of individual and family health becoming clearer, numerous authors have proposed ways to supplement unsupportive networks. Collins (1973) suggests active use of the "natural neighbor" in implementing community support systems for individuals; this concept is very similar to that described by Caplan as the "informal caregiver" (Caplan, 1974). Pringle (1974) reports on an experiment with the formation of "family clusters" to create "artificial extended families" and reduce the isolation of urban families. An impassioned plea is made by Howell (1975) for the formation of "alternative networks" of kin, friends, and neighbors to

aid families with problems of living. Caplan notes that with the attenuation of the kin network and even the basic family unit in many cases, there is a great need for substitute sources of support, such as "mutual help groups" (Caplan and Killilea, 1976). Such groups organized specifically for populations faced with common problems have been reported in working with new parents and college freshmen, for example (Gottlieb and Todd, 1979). The report of The President's Commission on Mental Health (1978) placed heavy emphasis on the importance of community support systems, self-help groups, and informal peer networks as community mental health resources. One of the primary recommendations of this report was the development of ways to assess social networks and to identify groups which are at risk due to deficiencies in their support systems. Noting this recent interest in social networks, and the many attempts at direct intervention, Gottlieb (1981) urges caution, emphasizing the complexity of such naturally occurring systems and the need for more complete understanding of their functioning.

V. SPECIFIC CHARACTERISTICS OF RURAL APPALACHIAN FAMILIES

The dominance of "familism," including close social ties with one's extended kin network, has been noted in studies of rural cultures by numerous sociologists (Loomis and Beegle, 1975; Sanders, 1977; Straus, 1969). This characteristic of rural social life has been noted to be particularly strong in Appalachia (Weller, 1965). The importance of kin relations in family life has recently been documented for rural

families in East Tennessee by Reed and Kuipers (1976), who found that 90% of their samples had kin living in their immediate community, and that visiting kin was the most frequent family activity reported. In some cases the density of kin residences in the area was found to be very high: over 20% of the families reported more than 25 kin living nearby; as might be expected, the frequency of kin contacts tended to be positively correlated with the number of kin living nearby.

In attempting to explain this heavy emphasis on kin relationships in rural Appalachian culture, a number of authors have cited different factors, including: geographic isolation from other sources of social contact and help; a very close, enmeshed style of child rearing and family life; and a distrust of outsiders, leading to the avoidance of new relationships (Weller, 1965). Heller (1976) proposed that this style of life could be seen as a way of coping with the difficult conditions of poverty which exist in many rural communities. He also emphasized the point made in another context by Farber (1971) that individuals at lower SES levels, especially in rural settings, need their kin for "survival needs," not just "symbolic needs."

The implications of this familistic orientation of rural Appalachian culture for the personality and cognitive development of children in this area have been examined by a number of authors. Freeman (1969) emphasized the lack of "psychological separation" between individuals in the Appalachian family, and the resulting dependence upon family and kin not only for support but also for a basic sense of identity. Loeff (1971) studied the psychiatric disorders common in Appalachian children and pointed out the high incidence of

problems related to separation issues. Coles (Coles, 1967; Coles and Coles, 1978) has contributed sensitive studies of the world of poor Appalachian families, and their children in particular. He has stated that patterns of child rearing in this culture are often antithetical to the middle class orientation toward intellectual development, as many of the parent-child interactions are non-verbal and oriented toward practical, concrete action, rather than toward speech and thought.

On an emotional level of functioning, the mothers in rural Appalachian families have often been noted to show a sense of fatalism, resignation, and apathy (Coles and Coles, 1978). Reed and Kuipers (1976) also commented on this characteristic of the mothers in their sample, who scored relatively high on a test of "anomia." This aspect of Appalachian culture was also addressed by Miles, in her writings on rural life in this area early in this century: "At twenty, the mountain woman is old in all that makes a woman old--toil, sorrow, childbearing, loneliness, and pitiful want" (Miles, 1905, p. 64). Coles sees the child in this culture as absorbing his parents' tensions and ambiguities early, which lead him to see life as a "stalemate," with little hope for real change in his life. He then goes on to suggest that the importance of family and kin is in part as an antidote to this view of life (Coles, 1967).

While there has been a great deal written on the culture of Appalachia and the needs of its people, there has been relatively little empirical research concerning problems related to rural mental in this area. Both The President's Commission on Mental Health (1978)

and a recent report on "Research Directions in Rural Mental Health" (Cedar and Salasin, 1979) have suggested that research efforts should focus on understanding and learning to work with the "natural support systems" available in rural communities. An effort was made in this direction by Hanton (1980), who attempted to develop a typology of rural families and then relate these to the types of "helping system" such families are likely to utilize. She notes that some "permanent low status" families appear to be excluded by the community: since their own networks have few resources and they tend to be unable or unwilling to use other sources of informal help, such families tend to rely heavily on formal sources of help. D'Augelli and his associates (D'Augelli, 1981; D'Augelli, Vallance, Danish, Young, and Gerdes, 1981) have made some attempts at direct interventions into the "local helping networks" of rural communities by training paraprofessional "helpers" to supplement these informal networks.

CHAPTER III

STATEMENT OF THE PROBLEM

Throughout this review of the literature in several areas of study related to the problems of lower-SES families, we find two themes which are particularly relevant for the CHDP in its attempts to assist poor families in improving their childrens' levels of cognitive development. The first of these is the crucial importance of the active participation of the primary caretaker in stimulating and guiding the child if he or she is to develop his or her cognitive potential. This accounts at least in part for the limitations and failures of many intervention programs which do not involve parents. Even with such parental involvement, however, some families appear unable or unwilling to change patterns of interaction which are detrimental to the developmental needs of their children.

It is particularly in looking at this group of "problem families" that the second major theme emerges: the importance of the social network in its functions as a support system. It has been observed that most individuals require a varied network of relationships involving kin, friends, and others, to support them in dealing effectively in dealing with life stresses, protecting them from destructive overloads. Mothers in the type of family under discussion have been found to have specific patterns in their social networks which not only make these networks unsupportive, but also tend to isolate these mothers from other sources of help. This situation

leaves these mothers subject to constant stress, which often leads to serious dysfunction, not only on the individual level (physical and mental health problems), but also on the interpersonal level (disrupted patterns of parent-child interaction). Specifically, mothers having such insular network patterns have been found to be generally depressed and low in self-confidence, with difficulties perceiving their children accurately and working with them in positive ways. These difficulties in parenting skills have been related to high rates of child behavior problems. Given the crucial importance of the parental relationship in cognitive development, it seems likely that the presence of such an insular pattern of social network would also be closely related to difficulties in cognitive development, as it appears to be with child behavior problems.

Following the implications of these two themes, it is expected that the families served by CHDP would show a significant relationship between the social network patterns of the mothers and the cognitive development of their children. Specifically, it is hypothesized that the degree to which the mother's network appears to fit an insular pattern (as described by Wahler, Leske, and Rogers, 1979) will be negatively correlated with the scores of the family's children on a test of cognitive abilities.

Most of the research on the social networks of individuals, relating patterns to other aspects of family functioning has been done with urban populations. It has been suggested that there is a need for research with rural populations, both to increase our knowledge of

social networks in this environment and to help us understand how these patterns may be related to problems in functioning. Therefore, a field study was conducted with a sample of the rural families participating in the CHDP, both to perform an empirical test of the hypothesized relationship between maternal network and cognitive abilities in the child, and to examine the social network patterns of this population in some detail.

CHAPTER IV

METHODOLOGY

I. METHODOLOGICAL INTRODUCTION

This study was undertaken with two goals: first, to provide an empirical test of the hypothesized relationship between maternal social network characteristics and child cognitive development; and second, to analyze the social networks of the mothers in these families in greater detail. In order to perform these tasks, three different types of data were collected and analyzed. Social network data was collected on the mothers, utilizing the Community Interaction Checklist (Wahler, Leske, and Rogers, 1979). Developmental data was collected on the preschool children in these families, in the form of the McCarthy Scale of Children's Abilities (McCarthy, 1972). Basic demographic data and other descriptive information on each family were collected through examination of CHDP records, additional questioning of the families, and discussion of family characteristics with CHDP team members. Each of these methods of data collection will be reported in more detail below. The reduction of this data and its use in the analysis will also be discussed.

II. PROCEDURES

Community Interaction Checklist (CIC)

The Community Interaction Checklist (CIC) was developed by Wahler and his associates (Wahler, Leske, and Rogers, 1979) for the

evaluation of social interactions between caretakers and others outside the immediate family. The CIC provides a format for a coded summary of the social contacts of the informant over a 24-hour period. It is extensive, covering a number of different aspects of the social interactions, including types of relationships involved, as well as the initiator, location, duration, content, and emotional valence of the contacts reported. Minor modifications were made on the CIC to make it more appropriate for the rural population being studied, and additional information was collected on the frequency and duration of evening meals. A copy of the CIC interview schedule may be found in Appendix A.

Arrangements were made with the CHDP to involve the team members in both counties in the collection of this social network data. The eight CHDP team members who collected this data were trained by the investigator in the use of the CIC, with several sessions of role-played interviews, comparison of results, and discussion. The team members then collected this data on each of their biweekly visits over a period of three to six months. The mean number of CIC's collected per family was 5.7, and no family had fewer than three.

To check the consistency of the social network data being collected with the CIC's, the investigator performed a number of reliability checks by completing duplicate CIC's on actual interviews done by team members throughout the study. In some cases this was done in person, during a home visit with the team member; in other cases, an audiotape of the interview was made and the investigator's CIC was based on this recording. Two such reliability checks, each

with a different family, were made for each of the eight team members involved. The reliability of the team members in collecting and coding the CIC data was found to be excellent, with interrater agreement ranging from .94 to 1.00 on the different categories of social contact data collected.

McCarthy Scale of Children's Abilities (MSCA)

The McCarthy Scale of Children's Abilities (MSCA) is a standardized developmental test for children ages 2.5 to 8.5 years of age, constructed by McCarthy (McCarthy, 1972). It consists of a battery of 18 short tests and takes about one hour to administer. It provides scores both for separate developmental scales based on specific abilities (verbal, perceptual-performance, quantitative, memory, and motor) and for a General Cognitive Index (GCI), which is comparable to a standard deviation IQ score. The average reliability for the GCI for all age groups is .93; the averages for the individual developmental scales range from .79 to .88. GCI scores have been found to correlate highly with IQ scores on the Stanford-Binet and the Wechsler Scales (Buros, 1978). The GCI has also shown a significant positive correlation (very similar to that of IQ) with SES (Kaufman and Kaufman, 1977).

The MSCA was administered to the target child in each of the 50 families by the investigator, who is trained and experienced in the administration, scoring, and interpretation of such tests. In view of the young ages of these children, the testing was done in their homes, to minimize test anxiety and maximize their cooperation and level of

performance. For almost all of the children, the complete MSCA was administered and scored. However, in four cases only one or two developmental scales could be obtained. In these cases, the GCI was estimated, using the table of percentile equivalents provided with the test (McCarthy, 1972), as recommended by Kaufman and Kaufman (1977). As a check on these estimates, a linear regression equation was computed, using the individual developmental scale scores as predictors of the GCI for the 46 children who did complete the test. The estimates thus obtained confirmed the original estimates taken from the percentile equivalents table, so the original GCI estimates were used in these four cases.

Demographic and Other Data

Basic demographic data available in the CHDP charts was compiled on each of the participating families. Included was such information as family size and composition, ages and educational levels of the parents, source and amount of annual family income, length of involvement with the CHDP, and other relevant facts.

In addition, geographic accessibility was estimated for each family, using a three-point rating system developed by the investigator and the CHDP team members. This rating scale took into account not only the actual distance of a family's home from population centers in the county, but also the difficulty of access, as determined by size and condition of roads. Ratings were done independently for each family by all team members familiar with a given family's location, and by the investigator. Interrater comparisons showed considerable

consistency, and in each case, a team consensus was reached for a family's final rating.

III. SUBJECTS

A total of 50 families were selected for this study from the rolls of the CHDP: 27 from Grainger County and 23 from Claiborne County. The only restrictions in the selection of these families were: 1. the family had at least one preschool child between three and six years of age, 2. the family was the child's permanent family (i.e., not a foster home), 3. the child in the target age range had no known congenital or physical handicap which might have limited his or her developmental progress, and 4. the family agreed to participate in this study. Given these selection criteria, a total of 53 families would have been eligible, and only three declined or were not asked to participate due to other problems. A copy of the permission form used in this study may be found in Appendix B.

The families in this study had been involved in the CHDP from a few months to eight years, with the mean being about three years. These families had annual incomes ranging from zero to \$13,600, with the majority on the low end of the scale, and a mean of \$4,766. For the 44 families with regular income, the sources were evenly divided, with 19 reporting exclusively earned income, 19 receiving only public assistance, and six relying on a combination of these. Despite their limited financial resources, all but five of the families owned (or had the use of) a car, and all but one of the families owned a television. Telephones were much less available, however, as fewer

than half of the families (21) had a telephone in their home. In part this may have been due to geographic isolation, as some of the families lived in inaccessible locations. The ratings of geographic accessibility appeared to approximate a normal distribution, with 28% of the families' homes rated as "easily accessible," 52% rated as "moderately inaccessible," and 20% rated as "very inaccessible."

Family composition varied a great deal in this sample. Since the social network data under study was based on maternal interactions, all 50 families had the mother (whether natural or adoptive) present. In 13 of the families, however, there was no father present. The mothers' ages ranged from 18 to 46, with a mean age of 28, while the 37 fathers who were present tended to be older, ranging from 22 to 75 years, with a mean age of 34. The mothers tended to be slightly better educated in these families, with a mean of slightly over nine years of school as compared to the fathers' mean of eight years. Despite a range of up to seven children, the number of children was generally small in these families, with over 80% of the families having three or fewer, and an overall mean of 2.6 children per family. On the average these children were slightly less than two years apart in age. In addition to the parent(s) and child(ren), almost 20% of the families had other individuals living with them.

The child tested in each family was the oldest preschool child, providing he or she had no congenital or physical handicaps. The age range of the children tested was from slightly under three years of age to slightly over six years, with a mean age of 3.7 years.

Distribution by gender was fairly even in this sample of children, with 22 males and 28 females tested. The children tested tended to be earlier born in their families, with 74% being either the first- or second-born.

IV. ANALYSIS

The developmental, social network, and demographic data collected on the 50 families were all coded for computer analysis. Computations were performed at The University of Tennessee Computing Center. Programs from both the Statistical Analysis System (Helwig and Council, 1979) and the Statistical Package for the Social Sciences (Nie et al., 1975) were utilized.

The most basic level of analysis included descriptive statistics, such as frequencies and means, which were obtained for all variables and are reported where relevant in the descriptions of the subjects and the results. Next performed were statistical tests of the primary hypothesis of significant relationship between the social networks of the mothers and the developmental scores of their children. This hypothesis was first tested through the use of a stepwise multiple regression (with a significance level of .10 required for entry into the model), using the social network variables as predictors of the GCI score. A second test of this hypothesis was done by comparing different groupings of social network data and developmental scores and testing for significant relationships with chi square.

Additional relationships between the variables were examined, in a matrix of Pearson product-moment correlations. Patterns of

intercorrelation noted in the social network data were then analyzed further, using a factor analysis to clarify patterns of social interaction. The factor analysis performed was a principal components analysis with iterations, and included a varimax orthogonal rotation. To ascertain the reliability of the factors discovered, Cronbach's alpha was computed for each of them, utilizing a unit-weighting of their significant variables. Finally, factor scores were computed for each family and utilized in further tests of correlation with developmental and demographic variables.

CHAPTER V

RESULTS

I. TESTS OF THE PRIMARY HYPOTHESIS

The primary hypothesis of this study was not supported by the data collected on this sample. No significant relationships were found between the developmental scores (GCI) of the children in these families and the social network data collected on their mothers. This finding of no significant relationship was consistent through two different statistical approaches to the data.

The first of these tests, a stepwise multiple regression, was performed in an attempt to find the best model for predicting the GCI score for each child from the social network data for his or her mother. With the significance level for entry into the model set at .10, none of the social network variables was significant in its contribution to the variance in scores on the GCI. A second attempt at testing the hypothesis was then made by grouping social network data so as to divide the sample into mothers approximating insular and non-insular patterns of interaction, using similar criteria to those developed by Wahler and his associates (Wahler, Leske, and Rogers, 1979). These groups were then compared on the basis of groupings by child's level of cognitive development (as measured by GCI), and a chi square test was done to check for significant relationships. Again, the finding was a clear lack of any significant relationship between these two groups of data. Thus, it was concluded that the

null hypothesis could not be rejected, and there was no support for the hypothesized relationship between mother's social network and child's cognitive development, as tested in this study.

II. ANALYSIS OF DEVELOPMENTAL DATA

The failure of the primary hypothesis to be supported by the data led the investigator to a closer examination of the developmental data, in particular the children's GCI scores. An effort was made to discover patterns within this data, to see if any unusual distribution might be distorting or concealing possible relationships with other data. In addition, the correlations between developmental data and demographic data were studied for significant patterns of relationship. The GCI scores appeared to approximate a normal distribution very closely, with a range of scores from 53 to 120, the mean at 91.5, the median falling at a score of about 90, and a standard deviation of 13.3. Since the GCI is standardized with a mean of 100 and a standard deviation of 16, this pattern of scores indicates that the distribution, though nearly normal, is shifted toward the lower end of the scale by almost 10 points. There were only two demographic factors which showed highly significant correlations with the GCI scores; these were the father's level of education ($r=.50$, $p<.01$) and the level of family income ($r=.31$, $p<.05$). A somewhat less significant correlation was noted between GCI score and mother's level of education ($r=.25$, $p<.10$).

III. ANALYSIS OF SOCIAL NETWORK DATA

The basic descriptive statistics on the daily social contacts of the mothers outside of their immediate families are presented in Table 1. The average number of daily contacts tended to be low (mean=3.74), but showed a very wide range of variation (from 1.43 to 13.5 contacts per day). In examining these data further, it is clear that the mothers in this sample tended to rely heavily on kin (55%) for their daily social contacts, while friends comprised less than 30% of their contacts, and others accounted for only 16%. These mothers' contacts tended to be fairly evenly divided between interactions which were self-initiated (55%) and those which were other-initiated (45%). Most of the daily interactions of these mothers tended to be close to home, with 80% either in their homes or within their immediate neighborhood/community. The duration of contacts made by these mothers was generally long, with almost half (44%) lasting over a half-hour and the great majority (86%) lasting more than a few minutes. Finally, the emotional valence assigned by these mothers to their daily contacts tended to be positive, with 52% of the contacts rated from mildly to very positive, 41% of the contacts rated as emotionally neutral, and only 7% rated as even mildly negative.

Two other aspects of the mothers' daily social interactions on which information was collected were different, in that they were oriented towards internal family interactions. The first of these was the amount of time during which the child under study was cared for by others. There was some variation in the amount of such care utilized by these mothers, with daily averages from no time at all to 8.5 hours.

TABLE 1
DAILY SOCIAL CONTACTS OF THE MOTHERS

Variable	Mean	Percent of Total	Standard Deviation	Range
Total Contacts	3.74	--	2.15	1.43-13.50
Type of Relationship				
Kin	2.07	55	1.59	.33- 7.67
Friend	1.10	29	1.09	0- 4.83
Other	.58	16	.52	0- 2.00
Initiator of Contacts				
Self-initiated	2.07	55	1.57	.17- 9.17
Other-initiated	1.67	45	1.14	0- 5.34
Location of Contacts				
In Home	1.63	43	1.28	0- 5.50
Neighborhood/Community	1.41	37	1.47	0- 7.50
Outside Community	.71	20	.82	0- 4.67
Length of Contacts				
Short ($\leq$ 5 minutes)	.55	14	.65	0- 3.17
Medium (5-30 minutes)	1.58	42	1.03	.17- 6.00
Long ($>$ 30 minutes)	1.61	44	1.01	0- 5.50
Valence of Contacts				
Positive	2.02	52	2.08	0-13.34
Negative	.28	7	.32	0- 1.50
Neutral	1.44	41	1.21	0- 5.00

However, the mean for the sample overall was less than one and a half hours per day, indicating that this group of mothers generally received little assistance in caring for these children, and spent most of their days with them. The other aspect of internal family functioning recorded was the frequency and duration of evening meals eaten together. The families in this study showed a very consistent pattern on this variable: on the average, these families had their evening meals together on 80% of the days studied, and virtually all of the evening meals eaten together were of at least moderate length (more than 15 minutes).

In examining the correlation matrix for the social network variables (Appendix C), it was noted that there were a number of significant intercorrelations among the social network variables. These variables included not only the aspects of daily social contacts for which group data presented in Table 1, but also the three additional aspects of daily interactions about which information was collected on the CIC. These additional variables were converted to daily averages and used in the analyses of social network data; they included the frequency with which CIC days were rated as positive "overall," the average number of hours per CIC day during which the target child was in the care of someone other than the mother, and the frequency of evening meals eaten together as a family on CIC days. Because of the large number of social network variables and their apparently complex patterns of relationship, a factor analysis was performed in an attempt to clarify and summarize these patterns.

The results of the factor analysis do provide a much clearer picture of the relationships between the social network variables examined in this study. Three clear-cut factors were discovered, each reflecting a distinct pattern of social interaction in the daily lives of this sample of mothers. A summary listing of these three factors, giving the variables loading most significantly on each of them, is presented in Table 2, while the complete factor structure, including loadings for all variables, may be found in Appendix C. For purposes of discussion, each of these factors was named, on the basis of the type of relationship predominant in that factor. Thus, factor 1 will be called "kin factor," factor 2 will be "friend factor," and factor 3 will be "other factor."

To test the internal consistency of these three factors, Cronbach's alpha was computed on each of them, utilizing a unit-weighting approach which included the variables with the most significant loadings on each factor (as listed in Table 2). All three factors were found to have high levels of reliability, with coefficients well above the level required for acceptability: kin factor = .90; friend factor = .89; and other factor = .77.

The final step in the analysis of the social network data was the computation of factor scores for each of the factors. A unit-weighting approach was used, including all of the variables which loaded most significantly on a given factor. The factor scores for each family were computed by first standardizing their scores (z-scores were used, with mean = 0 and standard deviation = 1) on the social network variables included in each factor. These standardized scores

TABLE 2
SOCIAL NETWORK FACTORS INCLUDING THE VARIABLES
WITH THE HIGHEST LOADINGS

Type of Variable	Factor 1/ Kin Factor	Factor 2/ Friend Factor	Factor 3/ Other Factor
<u>Type of relationship</u> (Loadings)	Kin (.69)	Friend (.58)	Other (.68)
<u>Initiator</u> (Loadings)	Self-initiated (.91)	Other-initiated (.98)	Self-initiated (.40)
<u>Location</u> (Loadings)	Neighborhood/ Community (.90)	In home (.94)	Outside community (.56)
<u>Length</u> (Loadings)	Medium (5-30 min.) (.71)	Long (30 min.) (.52)	Short ($\leq$ 5 min.) (.43)
<u>Valence</u> (Loadings)	Positive (.84)	Positive (.45)	Neutral (.69)
<u>Other CIC Variables</u> (Loadings)	Positive <u>days</u> (.48)	-	-
	-	-	Amount of time child in care of others (.55)

for the component variables were then summed for each family, yielding three factor scores. These factor scores were then checked for accuracy and utilized in further analyses, including Pearson product-moment correlations with each other and with the demographic and developmental data. Not surprisingly, the three factors all showed significant correlations with each other: the correlation between kin factor and friend factor was the greatest ($r=.66$, $p<.001$); that between kin factor and other factor was next ($r=.49$, $p<.001$); and that between friend factor and other factor was the least ($r=.34$, $p<.05$).

The correlation of the factor scores with the demographic and developmental variables available for these families did not reveal many significant relationships. The complete matrix of these correlations is presented in Appendix C. The few correlations with clear statistical significance included a positive relationship between friend factor and geographic accessibility ($r=.36$, $p<.01$), a positive relationship between friend factor and father's being employed ($r=.45$, $p<.01$), and positive correlations between the degree to which family income was earned (as opposed to being dependent on public assistance) and both kin factor ($r=.34$, $p<.05$) and other factor ($r=.39$, $p<.01$). At a lower level of statistical significance, several other relationships were noted. For the kin factor these correlations included: geographic accessibility ($r=.25$, $p<.10$), father's age ($r=-.29$, $p<.10$), and father's being employed ($r=.29$, $p<.10$). The friend factor showed similar levels of relationship with mother's age ($r=-.27$, $p<.10$), mother's education ($r=.24$, $p<.10$), and total number of children in the family

($r = -.24$, $p < .10$). Within this range of significance, the only correlation of interest for other factor was with mother's age ($r = -.24$, $p < .10$).

CHAPTER VI

CONCLUSION

I. LIMITATIONS OF THE STUDY

The sample of families studied in this project was small, which potentially affected the findings in two ways. First, it is possible that some relationships present between the variables studied did not appear statistically significant because of the small sample. Second, the size of this sample limits the degree to which the results may be generalized to the larger population from which it was drawn. Another limitation of this sample was the non-random nature of its selection. Since this study focused entirely on families involved in the CHDP, the sample was of necessity drawn from a small population which had already been selected from the general population on the basis of three facts: their need for such a program, their willingness to participate, and (in most cases) their financial condition. Therefore, this sample of families was not representative of the counties in which they live, but was weighted heavily towards a lower-SES population. However, within the CHDP, these families appeared to be reasonably representative, and there was very little self-selection for the study itself, as almost 95% of the families eligible for the study participated, and none dropped out before data collection was completed.

In the collection of social network data, several limitations must be noted. First and most important, there was no test of the validity of the social contact information reported by the mothers in

the CIC interviews. Other investigators using this instrument have conducted such checks on validity by obtaining permission from subjects to talk with the persons reported as contacts to confirm two aspects of CIC information, the occurrence and valence of contacts reported (Dumas and Wahler, in press). These validity checks have shown CIC data to be highly accurate concerning the occurrence of contacts (.98 agreement) and slightly less so concerning the valences assigned (.76 agreement). However, the use of the CIC itself in this study introduced a new level of interaction into the established relationships between the CHDP team members and the mothers being studied, and it was felt that following this up with more extensive contacts within the mothers' networks would have been too intrusive, and potentially disruptive of CHDP interventions. Given this limitation, it is possible that some of the mothers may have presented inaccurate pictures of their social networks. One possible source of bias could have been a response set suggesting that more contacts means that a person is "better," leading some mothers to exaggerate their numbers of contacts. Another possibility is that some mothers may have withheld information about individual contacts for personal reasons, although the fact that specific identities of contacts were not asked was intended to minimize such concerns. Despite these possibilities for bias, the team members who collected the CIC data reported that it appeared to be basically accurate and consistent with their observations of the mothers' social lives over the time they had worked with them.

Another major concern about the CIC data was its reliability, since it was collected by eight different CHDP team members. As

reported previously, all of these team members were trained in administering the CIC and were checked at least twice for their accuracy, with very good results. However, it is still possible that individual bias may have influenced the pattern of this data collection. One possible source of such bias could be in the degree of prompting provided by the team member during the interview: for instance, team members with generally positive outlooks may have subtly encouraged mothers to report their contacts as generally positive. Another possible source of error in the collection of CIC data could have been in varying degrees of persistence: since some of the mothers tended to be rather passive, the degree of effort expended by the interviewer could have affected the completeness of the information obtained. However, the conscientiousness of all of the team members about their participation in this project suggested that they paid a good deal of attention to obtaining complete interviews, and any effects of such variations in style were probably minimal on the data as a whole. Since the analysis of social network data was based on a composite of almost six CIC interviews (on the average), any effects of chance daily variations of the mothers' responsiveness, or their actual contact patterns, were minimized.

Finally, there were conditions related to the testing of the children which may have affected the results in this area. Since the MSCA was standardized on a large national sample, including rural as well as urban children at all SES levels, it was felt that the test itself would not present any problems of validity, although it was

expected that these children would probably score lower on the average, consistent with previous studies. It was felt best for such young children in this relatively isolated population to be tested at home, where they would be more secure and less anxious than in an unfamiliar setting. However, possible sources of error were noted in the conditions under which some of these children were tested. In some cases, the child tested had never met the investigator before the visit during which the MSCA was administered. While this may have led to anxiety adversely affecting the performance of some children, all but a very few were willing and able to complete the test after a period of becoming familiar and establishing rapport with the investigator. In other cases, it was not possible to achieve the ideal degree of privacy for the testing, due to maternal concern, sibling curiosity, or the child's anxiety. Despite this problem, however, the investigator was able to arrange the testing situation in such cases so as to prevent any direct interaction or prompting by others in the room. Finally, the physical conditions of the testing were generally very difficult, with some of the testings conducted in the stifling temperatures of a summer heat wave, or in competition with the excitement of a thunderstorm. Often the setting for such testings was the corner of a crowded living room or the edge of a cluttered kitchen table. However, since such situations were familiar to the child being tested, they probably represented less of an influence on their performance than a source of stress for the investigator.

II. DISCUSSION OF THE RESULTS

The first major finding of this study was the lack of support for the primary hypothesis. The results showed no evidence of a significant relationship between maternal patterns of social contact and the overall cognitive abilities of their children. However, it is possible that such a relationship exists but failed to show up in this study due to its limitations. The small size of the sample, in making statistical significance more difficult to achieve, could have obscured potentially significant relationships, although the lack of any correlations between these variables even approaching significance suggests that this is not the case. Another possibility is that uncovering any potential relationship between maternal social network and child cognitive development would require a more detailed examination of the mothers' social networks, perhaps addressing more qualitative aspects, which were not included in the present analysis. In any case, this finding of no relationship represents an interesting contrast to the work of Wahler and his associates, who have performed this same type of social network analysis and have found significant correlations between maternal network patterns and the presence of child behavior problems, as well as problems of maternal functioning (Wahler and Dumas, 1981). One possible implication of this difference in findings is that cognitive development is a much more stable aspect of human functioning than emotional development, and is less likely to be immediately responsive to such differences in the social environment.

Further analysis of the pattern of GCI scores indicated an approximately normal distribution, which suggests that the testing and scoring were basically reliable, without any consistent pattern of bias. The fact that the group mean on this test was noted to be almost 10 points below the national average appears to reflect the generally lower SES levels of this sample, since a significant relationship has been reported between this variable and GCI scores (Kaufman and Kaufman, 1977). It is interesting to note that this relationship between GCI and SES also appeared to be significant within this sample, as family level of income was one of only two variables having highly significant correlations with GCI scores. The only other variables found to have correlations with GCI scores significant enough to report were the levels of education of the father (significant at .05 level) and of the mother (significant at .10 level). These correlations may be seen in part as another expression of the general relationship between SES and scores on tests of cognitive ability, since parental levels of education have also been noted to be positively correlated with family SES level. However, this relationship may also be seen as supporting the well known importance of genetic and cultural factors (such as parental emphasis of education) in explaining children's levels of cognitive abilities (Willerman, 1979).

Although the primary hypothesis relating the social network data to developmental data failed to be borne out, the social network patterns discovered in the contacts reported by these mothers are interesting in themselves. Since most of the previous studies of such

networks have been done with urban populations, this study may be seen as an exploratory look at the social network patterns of a rural population. However, the limitations of the sample must be kept in mind: its small size and specific composition (CHDP families, mostly lower-SES) limit the degree to which these results may be generalized to other rural families.

The two internal aspects of family functioning which were studied both appeared to be consistent with patterns described for rural Appalachian culture. The fact that these mothers had so little time away from their children each day appears to reflect a close, dependent mother-child relationship common in this culture. It will be seen in the factor analysis of the social network data that this variable was part of a distinct pattern of social network interactions. The other internal family variable on which data was collected was the frequency and duration of evening meals eaten together as a family. The fact that, as a group, these families tended to eat the great majority of their evening meals together was seen as a reflection of the importance of family relations in this culture. This aspect of family functioning did not show any significant contribution to the interaction patterns discovered through the factor analysis of the social network data. However, there was one highly significant negative correlation noted ($r = -.36$, $p < .01$) between the frequency of evening meals eaten together and the frequency of negative contacts reported by the mother. This finding suggests a possible link between the internal functioning of these families and the external social networks of the mothers. It appears likely that a greater frequency of evening meals

eaten together could reflect a more stable, closer pattern of family life. Such a pattern would be likely to both indicate and contribute to a higher level of personal and social functioning by the mother, which would also tend to contraindicate the type of negative network orientation suggested by frequent negative contacts.

When comparing the overall means for different types of social contacts for these mothers to those found in the networks of insular mothers studied by Wahler and his associates, there are a number of similarities (Wahler, Leske, and Rogers, 1979). First, the average number of daily contacts in this sample approximates that found in the insular groups (mean ≤ 3) in previous studies. Second, the degree to which this sample's networks were dominated by kin contacts (55%), with an associated paucity of friend contacts (<30%), also appears similar to that found for insular mothers. Finally, the percentage of self-initiated contacts (55%) for these mothers was only slightly above the level found in insular samples. However, one important aspect of the social contact patterns of these mothers suggests that their social networks may differ significantly from those defined as insular. This difference is in the valences given to their contacts by these mothers. It was found that they rated their contacts as predominantly positive in nature (52%), whereas the pattern of insularity as studied previously has included a strong tendency toward neutral or negative rating of contacts.

This difference in the feelings about their social contacts in general could indicate a major difference in the orientation of the mothers in these two samples toward their otherwise similar,

kin-dominated social networks. The positive orientation noted in this rural sample is consistent with the previously reported emphasis on familism and kin relations in rural culture generally, and particularly in Appalachia. In this context, the predominance of kin contacts may be seen as a culturally supported adaptive pattern which is considered a positive asset by most mothers in this rural setting, where contact with others and with formal sources of help are made more difficult by isolation. On the other hand, it has been noted that among families in an urban environment, those at the upper SES levels tend to develop somewhat looser, less kin-dominated networks, partly from necessity and partly by choice. Meanwhile, there is a tendency for families at the lower SES levels to maintain their tight, kin-dominated networks, because of the protective functions such a network can serve for this population. Since such networks are not inherently unsupportive, it is likely that for many families in urban environments such tight networks function effectively as support systems for their members, and are seen as a positive resource, as they appear to be in the rural sample of the present study.

Such a view suggests that the crucial aspect of the insular network pattern which is related to problems in child behavior and maternal functioning is not the kin-dominated composition, nor the tight, closed structure, but the unsupportive, negative orientation of the mother and her kin towards each other. This type of negative network orientation, similar to that found by Tolsdorf (1976) in populations with severe psychiatric problems, is one in which both perceptions and actual interactions with the network have been observed

to be generally negative and unsupportive. Such a negative network orientation is by no means exclusively a lower SES phenomenon, and it would appear that the negative network orientation found in insular mothers is not necessarily associated with, nor caused by, the tightly knit, closed, kin-dominated social network pattern often found in lower SES groups. However, when this type of disrupted, negative relationship does occur between a mother and her social network (probably for a variety of reasons), if it is within the context of such a closed network, it is likely to prove much more resistant to intervention.

The final aspect of this analysis of the social network data was the factor analysis, which revealed three distinct and reliable patterns of interaction within the networks of these mothers. The factor scores based on these factors allowed the correlation of these patterns of social interaction with other demographic and developmental variables. The three factor patterns and their few correlations with other variables represent an exploratory look at the social networks of these mothers, and they may represent a type of analysis worth pursuing in future studies.

The kin factor pattern involved primarily self-initiated kin contacts of medium length, which took place mostly within the immediate community, and tended to be rated as positive; this pattern also included a tendency towards more positively rated days. This pattern of interactions appears to be consistent with the importance of familism in the culture of this sample, and its apparently positive role in the lives of these mothers: kin contacts appear to be actively sought and valued by this sample. The primary variable correlated

with the kin factor was the degree to which family income was earned, which suggests that the families who were functioning better in this respect tended to have a more positive orientation towards their kin, seeking more contact. Weaker positive correlations with geographic accessibility and father's being employed are also consistent with a higher level of family functioning, while the meaning of the negative relationship of kin factor and father's age is not as clear.

The friend factor pattern was somewhat different, including primarily other-initiated friend contacts of longer duration, which took place mostly within the homes of the mothers, and also tended to be positively rated. This pattern suggests that this sample of mothers tends to be more passive in their social relationships outside their kin network, relying on their friends to initiate contact much of the time. While such a pattern is consistent with the familistic orientation previously noted, it could also be related to the limited mobility of most of the mothers in this population, due to financial problems and constant child care responsibilities. The primary variables correlated with the friend factor were geographic accessibility and father's being employed. As discussed above, these both seem consistent with a higher level of family functioning, suggesting that such families tended to attract a higher frequency of friend contacts. Secondary findings with this factor included a positive correlation with level of mother's education, and negative correlations with mother's age and total number of children, suggesting that the older, poorly-educated mothers with more children tended to have fewer visits from friends. Such a pattern seems to be typical of a more

isolated subgroup within this population, which may be related to the issue of mobility or may be symptomatic of other problems in maternal or family functioning.

Finally, the other factor revealed a pattern of interactions which included primarily self-initiated contacts with others, generally of short duration, which took place mostly outside of the immediate community, and tended to be rated as emotionally neutral. This factor also included a tendency toward leaving the child(ren) in the care of others. Such a pattern suggests that contacts with others are not generally seen as emotionally important, and that such contacts tend to be of a more functional nature. The primary correlation found with the other factor was the degree to which family income was earned, suggesting that this pattern of contact is more frequent for those mothers whose family is functioning at a higher level, probably allowing them greater mobility. The one weaker finding was a negative correlation with mother's age, suggesting again that the older mothers may represent a more isolated subgroup in this population.

Thus, this factor analysis has articulated several patterns of social interaction within the networks of the mothers in this sample. The fact that the three factors correlate highly with each other suggests that they tend to occur together, in varying proportions, in the networks of all of the mothers. Since kin contacts appear to be predominant in the networks of this sample, it is likely that the kin factor pattern is important in the networks of most if not all of these mothers. Thus, it is not surprising that the kin factor is

highly correlated with both the friend factor and the other factor, which were much less strongly related to each other. This suggests that while almost all of the mothers in this sample rely heavily on kin contacts, some supplement this aspect of their network primarily with friend relationships, while others tend to focus more on going outside the community, where they have briefer, less personal contacts with others.

III. IMPLICATIONS FOR FURTHER RESEARCH

Given the limited size and composition of the sample in this study, it would be interesting to perform a similar study of social networks with a larger and more representative sample. Such a study would allow the replication and examination of the factor patterns discovered in the social interactions of the mothers in the present study. As suggested earlier, future attempts to investigate the proposed hypothesis linking child cognitive development to maternal social network patterns would require a different approach to the analysis of the social networks, since this study did not show any significant leads in this regard.

Since previous studies of social network patterns have shown significant relationships between such patterns and problems of child and maternal functioning, it is reasonable to expect that the factor patterns discovered in the social networks of these mothers may also be related to such aspects of functioning. Due to the cognitive focus of the CHDP and this study, no data were collected on such behavioral

or emotional problems. Such variables of child and maternal functioning should be included in future investigations of social network patterns. Should relationships be found between these problems and the factor patterns, then intervention programs might be able to utilize factor scores based on similar analyses of clients' social interactions, both in the study of such problems and eventually, in their prediction, treatment, and prevention.

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APPENDIXES

COMMUNITY INTERACTION CHECKLIST (CIC) FORM

[illegible]

APPENDIX B

PERMISSION FORM COMPLETED BY ALL MOTHERS IN THE STUDY



STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
EAST TENNESSEE REGIONAL OFFICE
ALEX B. SHIPLEY REGIONAL HEALTH CENTER
1522 CHEROKEE TRAIL
KNOXVILLE, TENNESSEE 37920

CHILD HEALTH AND DEVELOPMENT PROJECT

Child Development Social Network Project

The purpose of this project is to study the support systems of mothers in the Child Health and Development Project. This includes the social contacts that mothers have with kin, friends, community organizations, and others. We hope that what we learn will make it possible for Child Health and Development to be more helpful to the families it serves.

Participation in this project will include two things. First, your family's regular worker will ask you general questions about social contacts and will fill out a checklist on this information. This will take about 10 minutes and will be done during their regular visits with you for a few months. All questions are general and do not ask for names of friends, relatives, or other contacts. Second, one child in your family will be given a standard developmental evaluation which will include some questions, drawings, and games, and will take about one hour. It will be done by a trained evaluator and will be scheduled by your worker at your convenience.

Your participation in this project will be completely confidential. All families participating will be kept anonymous, with only numbers - no names - used in studying this information. This project is only for studying general information about families. It is not required as part of your work with Child Health and Development, and there will probably be no direct benefits to you as a result of your participation. However, we think this project will help us to improve this type of program for mothers and children in the near future.

If you have any questions concerning this project, please feel free to ask them at any time. You can discontinue participation in the project at any time. The project director is Robert Soule, and he may be contacted through the Child Health and Development Project office at the above address in Knoxville (phone 546-9221).

I have read and understood the above information concerning the Child Development Social Network Project, and I agree to participate in the project.

Signed _____

Date _____

Witnessed _____

APPENDIX C

ADDITIONAL STATISTICAL TABLES

TABLE C-1

CORRELATION MATRIX OF SOCIAL NETWORK VARIABLES, UTILIZING AVERAGE DAILY FREQUENCIES (INCLUDING LEVELS OF SIGNIFICANCE)

	Kin Contacts	Friend Contacts	Other Contacts	Self- initiated Contacts	Other- initiated Contacts	In-home community Contacts	In- community Contacts	Outside- community Contacts	Short Contacts	Medium Contacts	Long Contacts	Positive Contacts	Negative Contacts	Neutral Contacts	Positive Days	Amount of Time Child in Care or Others Eaten Together
Kin Contacts	.06															
Friend Contacts	.19	.08														
Other Contacts	.19	.17	.08													
Self-initiated Contacts	.19	.17	.08	.59												
Other-initiated Contacts	.19	.17	.08	.59	.24											
In-home Contacts	.19	.17	.08	.59	.24	.90										
In-community Contacts	.19	.17	.08	.59	.24	.90	.20									
Outside-community Contacts	.19	.17	.08	.59	.24	.90	.20	.18								
Short Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16							
Medium Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54						
Long Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73					
Positive Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08				
Negative Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08	.11			
Neutral Contacts	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08	.11	.35		
Positive Days	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08	.11	.35	.35	
Amount of Time Child in Care of Others	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08	.11	.35	.35	.05
Eaten Together	.19	.17	.08	.59	.24	.90	.20	.18	.16	.54	.73	.08	.11	.35	.35	.05

TABLE C-2

COMPLETE FACTOR MATRIX FOR SOCIAL NETWORK FACTORS, INCLUDING
LOADINGS FOR SOCIAL NETWORK VARIABLES

Average Frequencies of	Factor 1	Factor 2	Factor 3
Kin contacts	.69	.37	.13
Friend contacts	.19	.58	.13
Other contacts	.35	-.05	.67
Self-initiated contacts	.91	.13	.40
Other-initiated contacts	.13	.98	.11
In-home contacts	.18	.94	-.01
In-community contacts	.90	.06	.12
Outside-community contacts	-.01	.05	.56
Short contacts	.38	.36	.43
Medium contacts	.71	.47	.34
Long contacts	.52	.52	.07
Positive contacts	.84	.45	-.18
Negative contacts	.10	.19	.29
Neutral contacts	-.13	.22	.69
Positive <u>days</u>	.48	.01	-.32
Amount of time child in care of others	.17	-.13	.55
Evening meals eaten together	.01	-.02	-.14

TABLE C-3
CORRELATION MATRIX OF FACTOR SCORES WITH EACH OTHER AND WITH
DEMOGRAPHIC AND DEVELOPMENTAL VARIABLES (INCLUDING LEVELS
OF SIGNIFICANCE)

	Factor 1/ Kin Factor	Factor 2/ Friend Factor	Factor 3/ Other Factor
Factor 1/Kin factor	--		
Factor 2/Friend factor	.66 (.0001)	--	--
Factor 3/Other factor	.49 (.001)	.34 (.02)	--
Years in CHDP	-.05 (.75)	-.12 (.42)	.10 (.49)
Geographic accessibility	.25 (.08)	.36 (.01)	.23 (.12)
Family income level	.02 (.91)	.07 (.65)	.16 (.26)
Degree to which income is earned	.38 (.03)	.16 (.29)	.39 (.01)
Mother's age	-.17 (.23)	-.27 (.06)	-.24 (.10)
Mother's education	.02 (.87)	.24 (.09)	.09 (.54)
Father's presence	.06 (.67)	-.22 (.12)	-.12 (.40)
Father's age	-.29 (.08)	-.25 (.14)	-.22 (.19)
Father's education	.21 (.21)	.25 (.13)	.04 (.83)
Father's working	.29 (.08)	.45 (.01)	.25 (.14)
Total number of children	-.22 (.13)	-.24 (.10)	-.16 (.28)
GCI score of child	.11 (.47)	.15 (.29)	-.02 (.92)

VITA

Robert Monroe Soule, Jr. was born in Malden, Massachusetts on April 25, 1948. He attended elementary schools in Melrose, Massachusetts and graduated from Melrose High School in June 1966. He attended Amherst College in Amherst, Massachusetts and in June 1970 was awarded a Bachelor of Arts degree cum laude, in Anthropology.

For three years the author worked in mental health programs, first at Melrose-Wakefield Hospital in Melrose, Massachusetts, and then at Liberty House in Danvers, Massachusetts. Following this, he worked in college administration at Amherst College for three years.

In September 1976 the author entered the Graduate School at The University of Tennessee, Knoxville. During his training he worked at Cherokee Mental Health Center in Morristown, Tennessee; at Helen Ross McNabb Center in Knoxville, Tennessee; and at The University of Tennessee Psychological Clinic. He completed a full-time one-year internship in Clinical Psychology at Baylor College of Medicine in Houston, Texas, from September 1980 to September 1981. He received his Doctor of Philosophy degree in Clinical Psychology in August 1982.

The author has been married to the former Margaret Ann Coleman since May 1970, and they have one child, Daniel Coleman Soule, born on September 9, 1980.