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EXPLORING ASPECTS OF FAMILY HEALTH:

PARENTS AND ADOLESCENTS

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EXPLORING ASPECTS OF FAMILY HEALTH:

PARENTS AND ADOLESCENTS

By

Joan E. Wood

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ABSTRACT

EXPLORING ASPECTS OF FAMILY HEALTH:

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The influence of the family on the health behavior of its members was investigated in this cross-sectional exploratory study. A conceptual model which included components of current health behavior, family ecology, and child development frameworks and models provided study guidance. A total of 206 respondents, i.e., 60 dual parent families composed of father, mother and adolescent, and 13 female-headed single parent families composed of mother and adolescent, completed pen and pencil questionnaires. The presence of a family characteristic, a previously unknown or minimally investigated family phenomena, was determined by the congruency of family members' reports on health status, intrinsic motivation, health behavior (psychosocial and behavioral), and family functioning. The Discrepancy Score and Conjunctive Models (Klein, 1984) and their respective statistical approaches, i.e., derived discrepancy score and t-test and analysis of variance with repeated measures and F-test, determined congruency. Pearson correlations accompanied by

frequencies of the coeficients were used to examine within-family relationships between the supported characteristics for dual parent families. Analysis of variance was used to examine differences between family types on the supported family characteristics. Descriptive Pearson correlations examined supported characteristics by family type and income.

Both approaches supported health status as a family characteristic, neither supported intrinsic motivation, and there was conflicting support of health behavior and family functioning. Other findings were: a positive relationship between health status and family functioning from the within-family perspective, no differences between dual and single parent characteristics, and non-significant correlations between the characteristics and income by family type.

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CHAPTER I

INTRODUCTION

The adoption of a healthy lifestyle has been emphasized by the media, educational programs, and health professionals during the 1980s. This is based upon growing empirical evidence that the regular use of positive health practices, such as adequate nutrition, sleep and exercise, sound dental practices, reduction of stress, and the avoidance of smoking and alcohol will enhance personal health and well-being and increase longevity (Belloc & Breslow, 1972; Palmore, 1970; and Pratt, 1971). The health behavior research conducted during this period utilized divergent frameworks and models and examined an array of potential influencing factors. It was assumed that if the significant factors which promote the adoption of a healthy lifestyle and the regular use of positive health practices were identified, more effective and perhaps efficient intervention strategies could be developed and implemented. These strategies could then enhance the acquisition of more positive health practices, increase the frequency of those already practiced, and facilitate a higher level of health.

One influential factor frequently reflected in the health behavior frameworks and models was the social unit of the family.

This conceptualization is consistent with family and child development theorists and researchers (Andrews, Bubolz & Paolucci, 1980; Bruhn & Cordova, 1977; Bruhn & Parcel, 1982a; Crawford, 1971; Doherty & McCubbin, 1985a; Kandzari, Howard & Rock, 1981; Uphold & Harper, 1986) who view the family as the primary environment responsible for the psychosocial, physical and spiritual development of its individual members. Although the family has been identified as an important factor, past investigations have generally focused on the role of the family when a specific health related problem exists, e.g., the family and the diabetic child or the family and the alcoholic adult. The influence of the family on a broad range of psychosocial and behavioral health behaviors, e.g., practices related to stress reduction, nutrition, sleep, recreation, substance use, the home, and the use of the automobile, has been minimally investigated. Investigative efforts have been hampered by inadequately developed conceptual frameworks and models, by the lack of agreement about the variables of interest, by a lack of clarity regarding the unit of analysis, by measurement techniques of questionable reliability and validity, and by a lack of analytical approaches appropriate when data from two or more family members are obtained (Larzelere & Klein, 1987; Uphold & Harper, 1986).

Statement of the Problem

This research examines selected family and individual factors which influence the adoption of health behavior by family members by investigating the following questions:

1. Do the family characteristics of family functioning, family motivation, family health behavior, and family health status

exist?

2. If they do exist, what are the relationships between these characteristics within the context of the family?

3. If they do exist, what are the relationships between these characteristics for different family types?

4. If they do exist, what are the relationships between these characteristics and family income?

Purpose of the Study

The purposes of this study are: (a) to utilize a theoretical framework reflecting family ecological, health behavior development, and client-interaction perspectives, (b) to assess the presence of family characteristics, based upon individual member characteristics, by utilizing analytical approaches appropriate for relational data, and (c) to strengthen the current data base regarding the influence of selected aspects of the family realm (Beutler, Burr, Bahr & Herrin, 1989) on the health behavior of its members. The following research objectives and accompanying hypotheses resulted from the investigator's review of the health behavior and family research literature, the need for exploratory studies as suggested by theorists and researchers, and the investigator's observations of families as a community health nurse since the early 1960s.

Specific Research Objectives

1. Determine if there is congruence of family members' measures of health status, intrinsic motivation, health behavior (psychosocial and behavioral), and family functioning.

2. Investigate the relationships between the family mean scores of the supported family characteristics, e.g., health status,

intrinsic motivation, health behavior (psychosocial and behavioral), and family functioning, from the perspective of the individual family.

3. Describe the relationships between the family mean scores of the supported family characteristics, e.g., health status, intrinsic motivation, health behavior (psychosocial and behavioral), and family functioning, and the family realm (Beutler et al., 1989) variables of family type and family income.

Hypotheses

Hypotheses 1-4 are directed at establishing the presence or absence of the proposed family characteristics; the presence of a family characteristic is supported when congruence of perceptions or behavior is established. The investigation of hypotheses 5-18 depends upon the support or lack of support for these proposed family characteristics.

Hypotheses for Research Objective 1 related to family members' measures are:

1. Health status measures of the parent(s) and young adolescent within the same family will be congruent.

2. Intrinsic motivation measures of the parent(s) and young adolescent within the same family will be congruent.

3. Health behavior measures (psychosocial and behavioral) of the parent(s) and young adolescent within the same family will be congruent.

4. Family functioning measures of the parent(s) and young adolescent within the same family will be congruent.

Hypotheses for Research Objective 2 related to each family are:

5. The family health status mean score of each family will correlate positively with the family's psychosocial health behavior mean score.

6. The family health status mean score of each family will correlate positively with each of the family's two behavioral health behavior mean scores.

7. The intrinsic motivation mean score of each family will correlate positively with the family's psychosocial health behavior mean score.

8. The intrinsic motivation mean score of each family will correlate positively with each of the family's two behavioral health behavior mean scores.

9. The intrinsic motivation mean score of each family will correlate positively with the family's health status mean score.

10. The intrinsic motivation mean score of each family will correlate positively with the family's family functioning mean score.

11. The family functioning mean score of each family will correlate positively with the family's psychosocial health behavior mean score.

12. The family functioning mean score of each family will correlate positively with each of the family's two behavioral health behavior mean scores.

13. The family functioning mean score of each family will correlate positively with the family's health status mean score.

Hypotheses for Research Objective 3 related to all families are:

14. Dual parent families will have higher family mean scores on health status than female-headed single parent families.

15. Dual parent families will have higher family mean scores on intrinsic motivation than female-headed single parent families.

16. Dual parent families will have higher family mean scores on family functioning than female-headed single parent families.

17. Dual parent families will have higher family mean scores on health behavior (psychosocial and behavioral) than female-headed single parent families.

18. The family mean scores of the family characteristics, i.e., family health status, family intrinsic motivation, family health behavior (psychosocial and behavioral), and family functioning , will correlate positively with family income.

Conceptual Framework

Due to the purposes and objectives of this study and inadequate conceptual frameworks specifically focusing on the influence of the family on the health behavior of its members, components of three conceptual models: (a) the ecological family framework (Andrews et al., 1980), (b) the Interaction Model of Client Health Behavior (Cox, 1982), and (c) the development of health behavior in children (Bruhn & Parcel, 1982a), were selected and combined to guide this study. Each of these conceptual models is described and the selected components identified. The resulting conceptual framework is described in detail. The description includes a diagrammatic representation, the associated theoretical assumptions and definitions, and the selected methodological assumptions and definitions.

The Ecological Family Framework

The ecological perspective refers to looking at the relationship between organisms and their environment. The adaptation of this perspective to the analysis of the family is referred to as family ecology. Although various family ecological frameworks have been proposed, the framework developed by Andrews et al. (1980) was identified as a significant contribution to the conceptualization of the family and its members, and their relationship to the larger community (Thompson & Chin, 1985).

Andrews et al. (1980) acknowledged that a family ecosystem framework incorporates general systems theory, the ecological perspective, and the research findings from family scholars. Therefore, their framework views the family as an ecosystem which incorporates the interdependence of family members or subsystems, and the interdependence of the family with the environment. Their framework is not a singular general conceptual approach but a series of conceptual segments for studying the family. This suggests that the segments need further delineation so that their conceptualization can be more fully developed. While visualizations of some of these segments were provided, this investigator believes the stated assumptions rather than the visualizations are the strength of this framework. Therefore, the visualizations are not included.

In general, the relationships between the major concepts are logical, consistent and intertwined; the definitions are conceptual and not operational in nature. Examples of assumptions from this framework which are appropriate to the present study are: (a) the family is an environment for its members and influences their

development, (b) the family exhibits family characteristics or attributes in addition to being composed of members with individual characteristics or attributes, and (c) the family and its members each contribute to the external environment which in turn contributes to the family's and members' level of well-being, e.g., income and health.

Andrews et al. (1980) suggest their framework has potential for operationalization and for explaining and predicting family relationships at the individual, family, and societal levels. They indicate this outcome can be achieved by identifying the presence of additional family characteristics or attributes, by exploring the significant factors and processes involved, and by developing related intervention strategies.

The Interaction Model of Client Health Behavior

The Interaction Model of Client Health Behavior (Cox, 1982) focuses on three areas: (a) the client as an individual, (b) the client-professional interaction process, and (c) the health care outcomes resulting from the interaction. While applicable to a broad spectrum of health professionals, it was specifically developed to provide the nursing profession with a predictive theoretical framework which would facilitate the delivery of client care and advance nursing knowledge through nursing research.

The Interaction Model of Client Health Behavior incorporates a set of psychological, environmental, and sociological variables which have been empirically supported by nonnursing perspectives on client health behavior. However, its emphasis is on process, i.e., impact

of the client and professional encounter on the client's health care behavior.

Basic assumptions incorporated into the model are: (a) the client is capable of making informed, independent, and competent choices about personal health care behavior, (b) the choices are affected by various aspects of the "client's singularity", and (c) the client should have access to maximum control within the context of the environment in determining personal health behavior and health status (Cox, 1982, p. 3-4). Client singularity represents an amalgamation of variables, i.e., demographic (personal) characteristics, social influences, previous health care experiences, environmental resources and the relationships between and among them. It also incorporates intrinsic motivation, cognitive appraisal, and affective response. The model suggests the influence of the major elements and variables by incorporating feedback mechanisms utilized in general systems theory. Figure 1 represents a visualization of the model.

Two elements of the model have been selected and incorporated into the proposed framework, i.e., the background variables demographic characteristics, social influence, and environmental resources) and intrinsic motivation. Cox (1982) states "...the background variables operate over time within each client to produce a specific health behavior" (p.6); they are considered to be antecedents to subsequent variables. Motivation is viewed as an important aspect of the model. Its incorporated variables of competency and self-determinism are viewed as causal factors in health behavior.

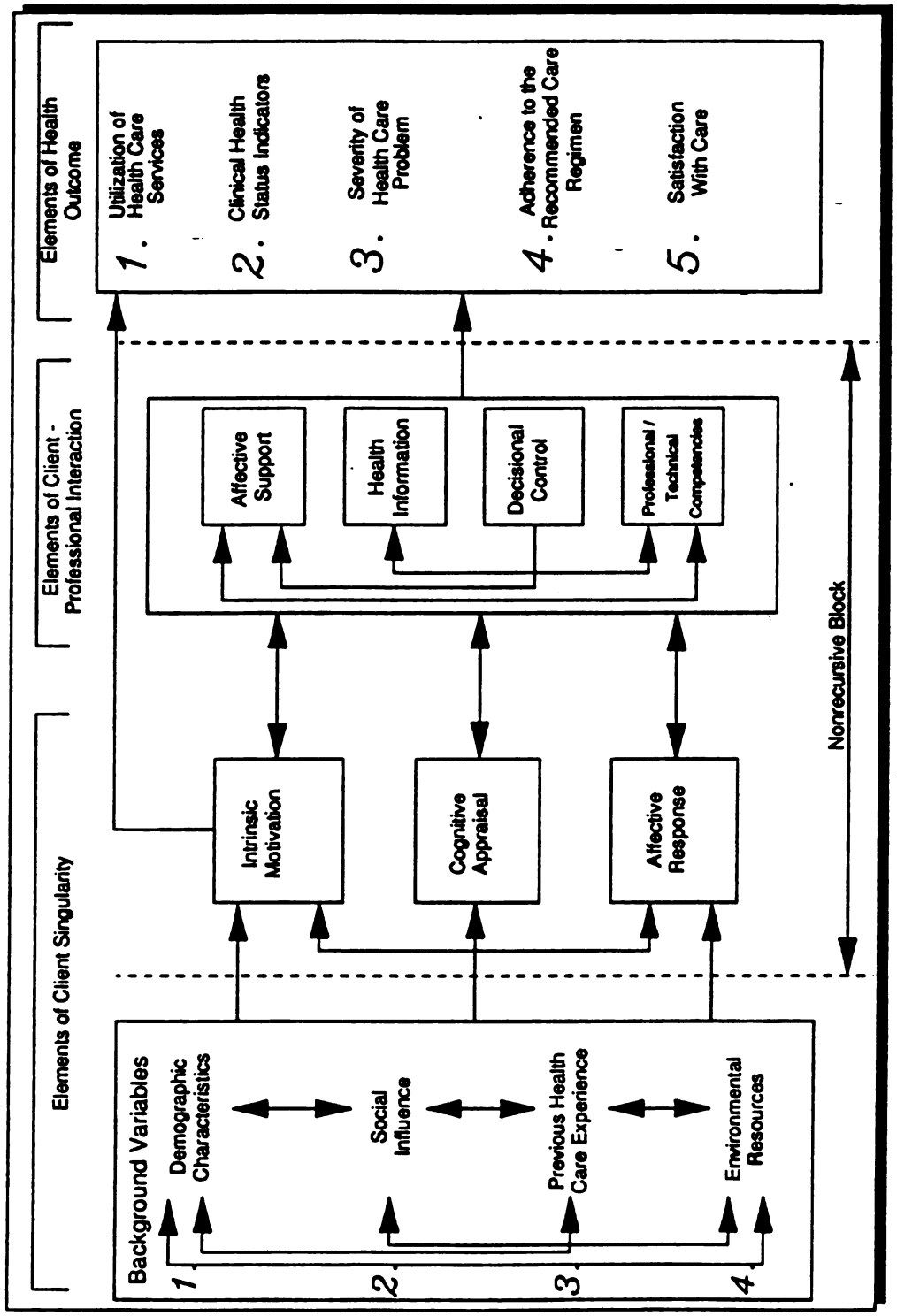

FIGURE 1. INTERACTIVE MODEL OF CLIENT HEALTH BEHAVIOR [Cox, 1982, p.47].

The Development of Health Behavior in Children

In 1981, 25 researchers involved in the investigation of health behavior of children attended an invitational conference to identify areas requiring future research, and to achieve consensus on definitions, variables, and methodology to guide the research (Bruhn & Parcel, 1982a). While these goals were not achieved, interdisciplinary perspectives were shared and the need for more rigorous research methods and innovative designs was recognized. During the conference, four task forces were formed; each examined one aspect of children's health behavior: (a) family influences, (b) developmental and psychosocial characteristics, (c) health behavior, and (d) health status indicators.

The task group on family influences identified several assumptions about the family to guide their discussion, developed a conceptual framework on the development of positive health behavior in children (Figure 2), identified demographic background variables to assess or control in studies, and selected family variables which could influence health behavior in children. While the framework is incomplete, it represents the only available framework which specifically focuses on the development of health behavior in children. Demographic background variables identified by the task force which have been incorporated into the current study as sample descriptive characteristics are: educational level of parents, gender of child, ethnicity, birth order, employment status of parents, religion, and age. Although income was identified as a demographic background variable by the task force, it has been identified as a family realm variable for this study. Family variables identified by

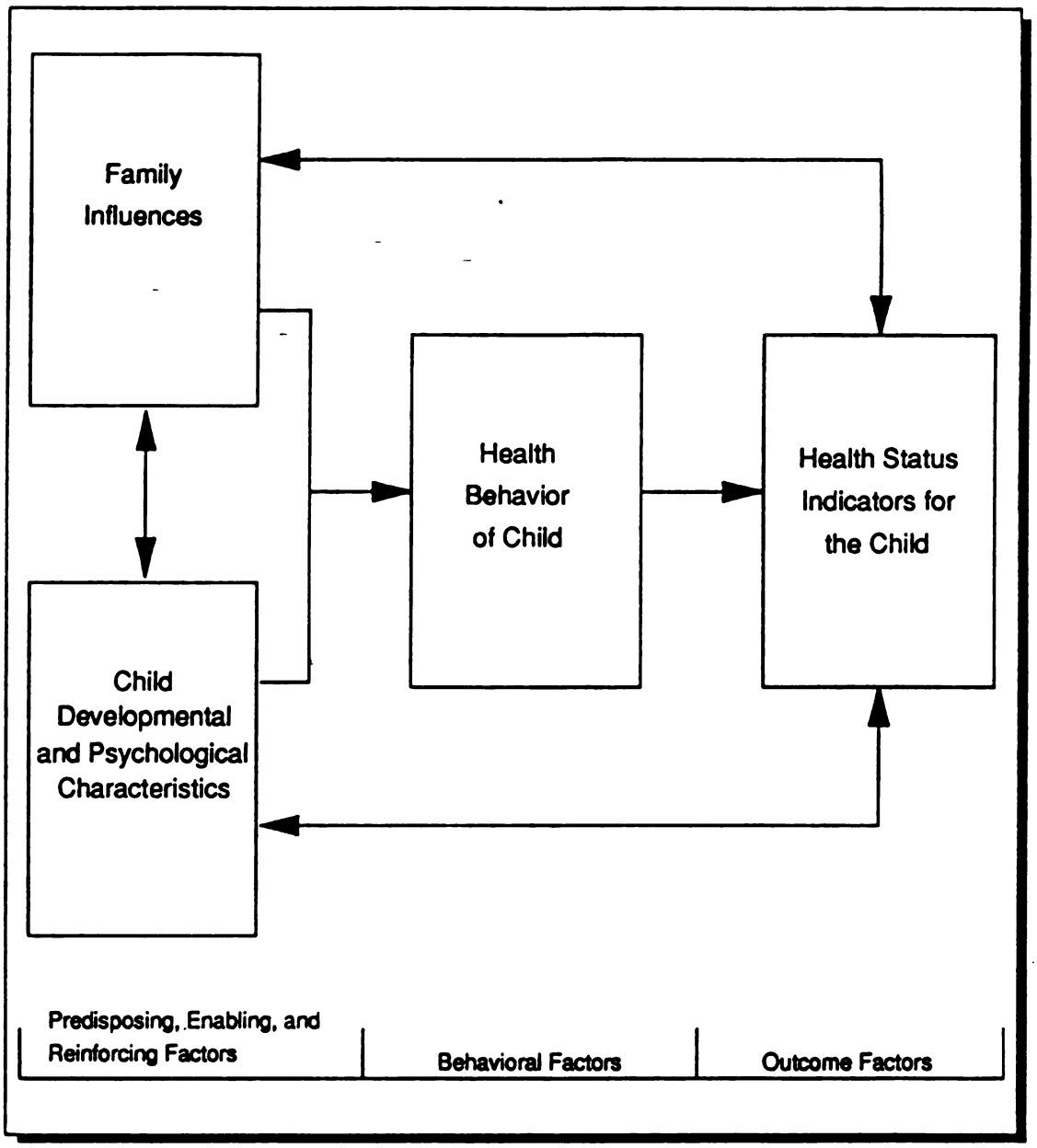

FIGURE 2. A CONCEPTUAL FRAMEWORK FOR THE DEVELOPMENT OF POSITIVE HEALTH BEHAVIOR IN YOUNG CHILDREN

[Bruhn & Parcel, 1982, p.143 - 241].

the task force which have been incorporated into the current study are modeling and interaction patterns as evidenced by the frequency of parental and child health behavior practices, family type, and family functioning.

The task force on developmental and psychological characteristics identified several assumptions to guide their discussion about the cognitive and affective dimensions which could influence health behavior in children. Intrinsic motivation was identified as a specific important personal attribute. This position further supported its inclusion as a major variable in the current study.

The health behavior task force also identified several working assumptions to guide its discussion. The group listed nine areas of health behavior with each area containing a list of specific practices that could be learned by children under 14 years of age. "These behavioral areas were selected because there is epidemiological data to indicate that young children are currently at risk or the behaviors are likely to relate to future life-style and risk factors" (Bruhn & Parcel, 1982a, p. 250). This list of nine areas of health behavior and the corresponding list of specific practices guide the definition of health behavior and thus data collection.

The health status task force attempted to identify variables or measures that would indicate the desired outcome had been achieved. The group assumed that health behavior results in social, emotional, cognitive, and physical outcomes. While several variables were identified in each category, the variables of perceived health

status, height and weight were selected for the current study; each can be measured with accuracy and has been used in previous health behavior research. Height and weight have been incorporated as part of the sample's descriptive characteristics; perceived health status is investigated from the perspective of a potential family characteristic.

The Proposed Conceptual Framework

The proposed model suggests that the family is a powerful determinant of the health behavior of its members, that multiple mechanisms of influence exist, that specific variables about the individual are related to health behavior and in turn to personal well-being, and that family characteristics or patterns develop and therefore have the potential for repetition in future generations. A diagramatic representation of the proposed framework which incorporates assumptions, elements, and variables from the three previously presented frameworks and models is presented in Figure 3. The two sets of assumptions, theoretical and methodological, which form the basis for this study follow.

Theoretical assumptions

1. The family ecosystem is composed of the environed unit, i.e., the family system or the family, the family realm (Beutler et al., 1989), the external environment, and the pattern of interactions between them.
2. The family system is composed of interacting and interdependent persons, each with their own distinctive characteristics, who share some common goals and resources, and share living space for a part of the life cycle.

THE FAMILY ECOSYSTEM

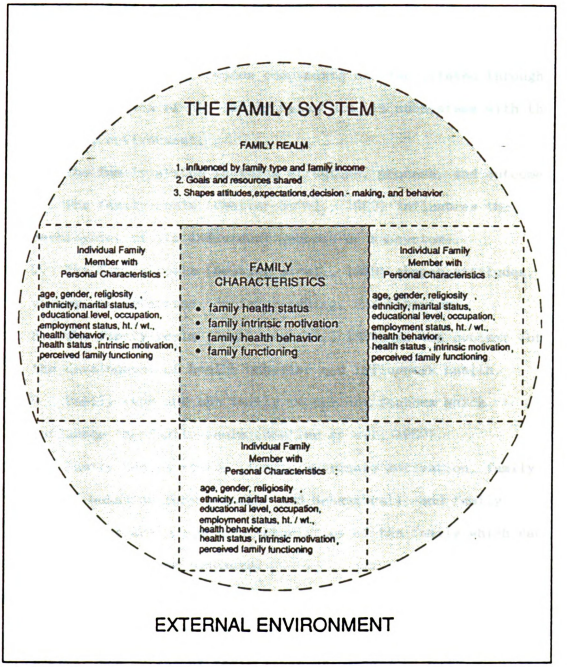

FIGURE 3. A CONCEPTUAL FRAMEWORK FOR FAMILY AND INDIVIDUAL CHARACTERISTICS RELATED TO HEALTH BEHAVIOR.

3. The family system is a whole with identity, actions, and characteristics of its own.

4. The maintenance of the family system and the development of skills and shared or common components are facilitated through the interaction of the family sytem and its subsystems with the external environment.

5. The family system includes structure, process, and outcome.

6. The family realm (Beutler et al., 1989) influences the development of its individual members or subsystems.

7. The family realm (Beutler et al., 1989) shapes attitudes, values, expectations, decision-making, and behavior.

8. The family realm (Beutler et al., 1989) is the context for the development of health behavior and influences health.

9. Family type and the family income are factors which influence the family realm (Beutler et al., 1989).

10. Family health status, family intrinsic motivation, family health behavior (psychosocial and behavioral), and family functioning are unique characteristics of the family which can be constructed and assessed.

Methodological assumptions

1. Respondents can accurately evaluate and report their health status, the extent of their sense of competency and self-determinism in health matters, and the psychosocial and behavioral practices they implement on a daily or regular basis.

2. Respondents can accurately evaluate and report their perception of the family's ability to work together, i.e., family functioning.

3. Respondents can accurately evaluate and report their personal characteristics of age, gender, religiosity, ethnicity, marital status, educational level, occupation, and employment status.

4. Family characteristics can be determined from the self reports of the family members.

5. By the age of 13, individual family members can learn a wide variety of health behavior practices and perform them on a daily or regular basis (Bruhn & Parcel, 1982a; Vogel, 1987).

6. The statified random sampling of religious congregations of different denominations in a specified geographic area will yield a population of families with different religious affiliations.

7. Individual family member paper and pencil questionnaires provide privacy of response, delete the possibility of interviewer biases, and facilitate data quantification.

8. The study questionnaire is developmentally appropriate for the selected family members.

9. The Discrepancy Score and Conjunctive Models (Klein, 1984) are conceptually appropriate for the investigation of the presence of family characteristics related to health behavior.

10. Congruence of the family members' measures on health status, intrinsic motivation, health behavior (psychosocial and behavioral), and/or family functioning indicates a family characteristic is present.

11. The specific analytic approaches selected are guided by the intent of this study, the data, and statistical and financial resources.

12. The creation of a summary score, i.e., individual member mean score or family mean score, reflects the variable of interest and is a reasonably good measure of the variable.

Theoretical definitions

1. Family. A system composed of two or more interrelated interdependent individuals (i.e., members) who share common goals and resources including living space for some part of the life cycle (Andrews et al., 1980).

2. Health behavior. Those personal psychosocial and behavioral practices implemented by a family member on a daily or regular basis which influence well being (Beutler et al., 1989; Harris & Guten, 1979; Parcel, Bruhn, & Murray, 1984).

3. Intrinsic motivation. The extent of the family member's sense of competency and self-determinism in health matters (Cox, 1985).

4. Health status. The family member's current assessment of personal overall well-being (Ware, 1976).

5. Family characteristic. A unique property of the family as a unit resulting from the relationships between the members and reflected in the shared or common (congruent) components of the members (Andrews et al., 1980).

6. Contextual variables. Descriptors of the family and its members.

Operational definitions

1a. Dual parent family. The biological mother and father and their offspring, the eldest being between 13 and 16 years of age or the adoptive mother and father and their adopted children, the eldest being between 13 and 16 years of age and adopted during the child's first year of life.

1b. Single parent family. The biological mother and her offspring with the eldest being between 13 and 16 years of age or the adoptive mother and her adopted children, the eldest being between 13 and 16 years of age and adopted during the child's first year of life.

2a. Psychosocial health behavior. The evaluation of the family member's psychosocial practices as determined by the score attained on the Self-Care Inventory (Hager, 1984).

2b. Behavioral health behavior. The evaluation of the family member's behavioral practices as determined by the score attained on each of two measures: the Health Protective Behaviors Questionnaire - Part 2 (Harris & Guten, 1979; Salovey, Rudy & Turk, 1987) and the Health Practices Survey (Wood, 1989).

3. Intrinsic motivation. The evaluation of the family member's sense of competency in health related matters as determined by the score attained on The Health Self-Determinism Index (Cox, 1985).

4. Health status. The evaluation of the family member's perception of personal well being as measured by excellent = 4, good = 3, fair = 2 or poor = 1 (Ware, 1976; Ware, Brook, Davies & Lohr, 1981).

5a. Family intrinsic motivation. The summary mean score resulting from the combination of family members' mean scores within the same family (Discrepancy Score Model) or the within-family factor (Conjunctive Model) as measured by The Health Self-Determinism Index (Cox, 1985).

5b. Family psychosocial health behavior. The summary mean score resulting from the combination of the family members' mean scores within the same family (Discrepancy Score Model) or the within-family factor (Conjunctive Model) as measured by the Self-Care Inventory (Hager, 1984).

5c. Family behavioral health behavior. The two summary mean scores resulting from the combination of the family members' scores within the same family (Discrepancy Score Model) or the two within-family factors (Conjunctive Model) as measured first by the Health Protective Behaviors Questionnaire-Part 2 (Harris & Guten, 1979; Salovey, et al., 1987), and second by the Health Practices Survey (Wood, 1989).

5d. Family functioning. The summary mean score resulting from the combination of the family members' scores within the same family (Discrepancy Score Model) or the within-family factor (Conjunctive Model) as measured by the General Functioning Subscale of the McMaster Family Assessment Device (Epstein, Baldwin & Bishop, 1983).

6a. Family income. The highest response given by an adult, mother or father, in the dual parent family or the mother in the single parent family, as determined by intervals of $5,000

beginning at "Less than $10,000", and ending with "More than $100,000".

6b. Family type. The classification of the family as determined by the presence of either: (a) the mother and father referred to as the dual parent family, or (b) the mother referred to as the single parent family.

6c. Age. The chronological age as determined by the birthdate provided by the family member.

6d. Gender. The sex of the family member as measured by their written response of female or male.

6e. Religiosity. The family member's selection of religious affiliation from the following categories: Catholic, Protestant, Jewish, and Other (Specify), and the specified frequency of attendance at religious services or functions at intervals of one from "0" to "more than 5" during the month preceding the study.

6f. Ethnicity. The family member's selection from the following categories: White not Hispanic, Black not Hispanic, Hispanic, Asian, Pacific Islander, American Indian, or Other (Specify).

6g. Marital status. The family member's selection from the following categories: Married, Divorced, Widowed, Separated, Never married, or Other (Specify).

6h. Educational level. The family member's selection of the last year of school completed as measured at yearly intervals from kindergarten through post doctoral study.

6i. Occupation. The category, e.g., professional, management, proprietor (small business), clerical worker, sales worker,

skilled craftsman or foreman, operative unskilled laborer, student, farmer, homemaker and other, as determined by the job title and description given by the family member.

6j. Employment status. The family member's selection from the following categories: self-employed full-time, self-employed part-time, employed by other full-time, employed by other part-time, unemployed, student part-time, student full-time, and other (Specify).

6k. Height. The family member's self report of how tall he or she is without shoes as measured in feet and inches.

6l. Weight. The family member's self report of how much he or she weighs without shoes as measured in number of pounds.

Significance of the Study

Past investigations regarding health behavior of the individual and the family suggest that further exploration of selected potential influencing factors be pursued. Specifically, the investigation of: (a) health status (Hunt, McEwen & McKenna, 1986; Ware et al., 1981), (b) intrinsic motivation (Cox, 1985; Cox, Miller & Mull, 1987), (c) health behavior (Bruhn & Parcel, 1982a; Doherty & McCubbin, 1985b; Pratt, 1976), (d) family functioning (Pratt, 1973; 1976), (e) family type (Duffy, 1988; Loveland-Cherry, 1986), and (f) family income (Bruhn & Parcel, 1982a), could provide important additional information. One approach proposed by family researchers (Fisher, Kokes, Ranson, Phillips & Rudd, 1985; Klein, 1984; Schumm, Barnes, Bollman, Jurich & Milliken, 1985) to investigate the influence of the family as a unit is the statistical combining of data from multiple members in the same family. Minimal evidence of the application of

this approach to data describing family functioning and health behavior exists; there was no evidence of its application to data describing intrinsic motivation in health related matters or personal health status. Utilization of this exploratory approach could reveal the presence of previously unknown unique family characteristics or family attributes. Confirmatory results could clarify present conceptualizations of the influence of the family on the health behavior of its members and provide direction for future family focused health behavior research.

CHAPTER II

REVIEW OF LITERATURE

Systematic investigations conducted since the 1960s have revealed that the incorporation of positive health behavior into an individual's lifestyle will be reflected in improved personal health and increased longevity (Belloc & Breslow, 1972; Palmore, 1970; and Pratt, 1971). Although this relationship has been established, the critical factors which promote the adoption of positive health behavior are still being clarified and identified by researchers from a broad spectrum of disciplines, e.g., medicine, nursing, sociology, health education, and psychology. The breadth of these investigations will be reviewed from the perspective of the associated conceptual and methodological issues.

Conceptual Issues

Conceptual issues identified and discussed include: the variation of current health behavior theoretical frameworks and models, the dimensions and variables, health behavior, health outcome, unit of analysis, and the potential presence of family characteristics related to health behavior.

Theoretical Frameworks and Models

Since the early 1960s various conceptual models and frameworks have been utilized in investigations to account for individual health behavior. They "differ considerably in their theoretical perspective, the types of health behavior they wish to explain and the labels employed to describe their respective dimensions and variables" (Becker & Maiman, 1983, p.558). Initially many of the models reflected a health service perspective and were directed toward increasing understanding of illness behavior of the individual, for example, the responses of the newly diagnosed diabetic patient to suggested dietary changes. However, many of the current models incorporate a health promotive perspective, i.e., the factors which influence positive health behavior and personal health. In general, the frameworks and models employed to predict and explain the presence or absence of health behavior reflect one or a combination of the following perspectives: epidemiological, sociocultural, psychosocial, inter-relational, and community. Selected frameworks and models utilizing these perspectives are reviewed to demonstrate their diversity.

The Epidemiological Perspective

The standard factors of the epidemiological model, i.e., host, agent and environment, were modified by Suchman (1975) in his investigation of the acceptance or rejection of an accident preventive measure among Puerto Rican sugar cane cutters. The host factor represented personal characteristics which influenced readiness. The negative and positive attributes of the preventive measure represented the agent, and the social factors, e.g., mass

media and social participation, represented the environment. Suchman (1975) stated that the model modification enabled him to investigate the problem of public acceptance of health innovations.

The Sociocultural Perspective

Fabrega (1976) developed a behavioral framework for studying human disease. His model demonstrates how an individual "processes information about illness and makes decisions designed to alleviate his condition" (Fabrega, 1976, p.200). Assumptions of the model are: (a) there is a relationship between the behavior of the person and the cause of the disease, (b) the behavior resulting from the disease can be evaluated systematically, (c) persons with the same disease may exhibit different behaviors, (d) personal orientation directs the individual's action regarding treatment, and (e) the disease can be viewed within the context of personal adaptation which occurred through an evolutionary process. Culture, the mechanism for the transmission of rules, beliefs and strategies to the individual or group, influences the individual's definition of disease, treatment, and health. Although culture is acknowledged as a significant influence, Fabrega (1976) also recognized that patterns change and thus produce stress to the individual or group. Therefore, he proposed the use of a system perspective to demonstrate the interrelatedness of the individual and the disease, and the individual and other social systems. Three paradigms for approaching disease were proposed: (a) task action--the daily routine activities of the individual, (b) role enactment--the impact of social position and role on the individual's obligations and duties, e.g., occupational, familial, recreational and religious, and (c)

psychological—the individual's values and cultural assumptions. Nine stages of decision-making that an individual goes through during an illness were also described. Becker and Maiman (1983) indicated that although the variables may be difficult to operationalize, that use of this model in future studies could assist in the identification of the key variables.

The Psychosocial Perspective

Theorists and researchers have been most supportive of the psychosocial perspective, therefore, three different examples of are provided.

The Health Belief Model (HBM) has been a major organizing framework for explaining and predicting acceptance of health care recommendations (Rosenstock, 1974). The model was developed in the early 1950s by a group of social psychologists at the U.S. Public Health Service to understand why people did not utilize preventive and screening tests available for the early detection of disease (Rosenstock, 1974). The major areas of emphasis of the model are: (a) personal desire to avoid illness or to get well, (b) the individual's perceived threat of illness, and (c) the impact of personal action to reduce the threat. The dimensions of the model are perceived susceptibility, perceived severity, perceived benefits and perceived barriers. According to Rosenstock (1974, p. 332) "The combined levels of susceptibility and severity provided the energy or force to act and the perception of benefits (less barriers) provided a preferred path of action." However, a cue to action, internal to the person (symptoms) or external to the person (e.g., interpersonal interactions or mass media communication) was believed to be

necessary before the decision-making process was initiated. Although this model focused primarily on personal attitudes and beliefs, it also recognized that demographic, sociopsychological and structural variables influence perception (Becker & Maiman, 1983; Janz & Becker, 1984).

Janz and Becker (1984) reviewed 46 investigations conducted between 1974 and 1984 which used the HPM. They concluded that there was substantial evidence which supported the HBM dimensions as important contributors to the explanation and prediction of individual health behavior. They also noted that these studies focused on the major model dimensions and therefore provided very limited information about the influence of other variables.

Another example of a model in this category was proposed by Kulbok (1985). This model, the Resource Model of Preventive Health Behavior, recognizes that the investment of personal social and health resources into an individual's lifestyle facilitates good health habits. Two major assumptions guide this model: (a) preventive health behavior is influenced by personal health and perceptions of health, and (b) health is a positive multidimensional process. Social resources are identified as the achieved education while income and health resources are defined as the multidimensions of health which include physical, mental and social well-being. Preventive health behavior is defined as the voluntary actions an individual undertakes regardless of the perceived or actual health status.

A third model reflecting this perspective was proposed by Doherty & McCubbin (1985a). The Family Health and Illness Cycle

Model represents a biopsychosocial portrayal of the family's efforts to reduce illness risks and to manage and adapt to illness. Phase 1, family health promotion and risk reduction, emphasizes the influence of the following factors: environmental, social, psychological and interpersonal. These factors within and surrounding the family promote health and reduce associated risks of family members. Phase 2, family vulnerability and illness onset, refers to life events and experiences which could initiate an episode of illness, e.g., divorce or death. Phase 3, family illness appraisal, denotes the efforts of the family to understand the member's symptoms, i.e., to determine the seriousness of the complaint. Phase 4, family acute response, addresses the "immediate emotional and interactional aftermath for the family of the illness experience and the family's appraisal of it" (Doherty & McCubbin, 1985a, p.8). Phase 5, family and the health care system, focuses on the decision of the family to handle the illness or seek external assistance. Phase 6, family adaptation to illness, addresses the illness's long-term impact upon the family. According to Doherty & McCubbin (1985a), the terminology of this symptom-oriented approach can be altered from the primary focus of illness to the area of health promotion. They speculate that the phases of the model represent the areas of future research on the family and health care.

The Inter-relational Perspective

A good example of this perspective is The Interaction Model of Client Health Behavior (Cox, 1982, 1985). Although described previously in relation to the conceptual framework for this study, a brief review follows. This model was developed to explain the

relationships between the individuality of the client, the client-provider relationship, and the client outcomes and behaviors. The model assumes that clients are capable of making informed, competent and independent decisions about their health behavior. Client characteristics, the background variables (demographics, social group influence, previous health care experiences and environmental influences), intrinsic motivation, cognitive appraisal, and affective response, are viewed as antecedents to the interaction and outcome. The client-provider relationship includes the variables of affective support, health information, decisional control and professional/technical support; variables specified in health outcome are utilization of health care services, clinical health-status indicators, severity of health care problem, adherence to the recommended-care regimen, and satisfaction with care (Cox, 1982, 1985).

The Community Perspective

Rodgers' (1984) multivariate model proposed that a systematic process be utilized in the assessment, prediction, and intervention in communities with respect to aggregate health risks. Health was viewed as a dynamic concept reflective of an ecological relationship; the community was viewed as the frame within which health and risk occur. Although the model was intended as a tool to assist nurses to improve health care, it could be applied by or in conjunction with other individuals and groups interested in health and the community. The process outlined follows: (a) obtain information about the community of interest, (b) analyze the data, assets and liabilities, (c) classify problems identified by formulating community or

aggregate diagnoses, (d) develop alternative strategies for resolving diagnoses, (e) select and implement the best strategy, and (f) evaluate the impact of the intervention. Specific information to acquire for the assessment includes: (a) population characteristics, e.g., age, sex, marital status, education, income, causes of death, and (b) community characteristics, e.g., government, public services, sources of energy, economic status, communication vehicles, utilities, recreation, religion, transportation, health/medical services, social services, educational services, and power and influence.

Dimensions and Variables

Current frameworks frequently identify different dimensions and variables. Dimensions refer to the large focal areas of the frameworks. In general, in health behavior research, these dimensions are reflected as: (a) demographic or personal characteristics, (b) social influences, (c) environmental influences, (d) health behavior, and (e) health outcome. Within each of these dimensions, the variables of interest are specified. Based upon a thorough examination of current health behavior frameworks, Becker and Maiman (1983) concluded that the variables of interest within each of these dimensions tend to differ with each framework. They further noted that some of the variables included had empirical support while others had no empirical support. In addition, they found that some of the dimensions omitted variables which had empirical support. Therefore, the comparison of study findings is complicated.

Although many different variables have been investigated, this study focuses on selected variables appropriate to its purpose and research questions. They have been organized under the general dimension categories identified.

Demographic or Personal Characteristics

The demographic or personal characteristics of the individual, e.g., level of education, gender, marital status, occupation, age, and religiosity, have been recognized as important in the investigation of health behavior (Berkman & Breslow, 1983; Campbell, 1987; Rothman, 1978). Socioeconomic differences are associated with differences in health behavior (Berkman & Breslow, 1983; Coburn & Pope, 1974; Fuchs, 1974; Kirscht, 1983). The influence of income will be reviewed in greater detail under "family variables". A near linear relationship between years of formal education, occupational "level" and dental check-ups was reported for male adults (Kasl & Cobb, 1966). According to Coburn and Pope (1974), education and age were noted as two of the best predictors of frequency of physical examinations, dental checkups, and obtaining polio vaccinations by adult males. Kirscht (1983) reported that smoking has a negative association with educational achievement while good nutritional practices are positively associated with socioeconomic status. Studies of gender differences reveal that women, rather than men, typically obtain dental care, immunizations, and asymptomatic check-ups (Lairson & Swint, 1978; Nathanson, 1977). Married adults, age 55 and older, who attended activities at a senior citizens' center scored significantly higher on health practices than their nonmarried counterparts (Hubbard, Muhlenkamp & Brown, 1984). Black

men and women were found more likely to engage in high-risk practices than other ethnic groups (Berkman and Breslow, 1983).

Social Influences

The dimension of social influences recognizes that the health behavior of the individual is influenced by social relationships (Bruhn, 1988; Mullen, 1983). Although this dimension is routinely incorporated into the frameworks, past investigations have focused primarily on personal characteristic variables rather than social relationship variables. Investigations of social relationship variables, such as parents, siblings, the family as a unit, other relatives, individuals in the broader community, the media, organizations, and institutions have been a recent interest of researchers. While each social influence variable is recognized as important, the influence of the family has been selected as the key social influence variable in this investigation.

The family and specifically the parents have been recognized as playing a significant role in the development of health behavior in children (Bruhn, 1988; Bruhn & Cordova, 1977; Bruhn & Parcel, 1982a; Crawford, 1971; Doherty & McCubbin, 1985b; Haydon, 1987; Holman, 1983; Kandzari et al., 1981; Mullen, 1983; Sallis & Nader, 1988). While family and parental influence are believed important, the conceptualization of the factors to be investigated has been unclear. As a result, the investigation of their impact has been limited and the findings inconsistent (Duffy, 1988). However, specific mechanisms of social influence by the family or parent(s) which have been identified for further investigation include: (a) parental teaching of health behavior through modeling, demonstration, and/or

verbal instruction, (b) parental influence on the development of motivational attributes of their offspring, and (c) family variables (Bruhn & Parcel, 1982a; Mullen, 1983).

Parental teaching of health behavior through modeling, demonstration, and/or verbal instruction. Study results about parental influence are mixed. Mechanic (1964) assessed the degree of influence mothers had in shaping their children's health attitudes and behaviors. His data on 350 mother-child pairs suggested that maternal influence on both was considerably less than hypothesized. A lack of support for the assumption that parental modeling behavior affects children's health behavior was also noted by Bruhn and Parcel (1982b). They interviewed low income, predominantly ethnic minority single mothers of 202 children ranging in age from two to four years. Their analysis showed no relationship between the mothers' health behavior, mothers' locus of control, or the mothers' value of health and the children's practice of health and safety behavior.

However, 59 female single parents who identified behaviors which promoted health or prevented disease indicated that the positive health behaviors of a balanced diet, rest, and exercise originated in their childhoods (Duffy, 1986). Also, a follow-up study by Mechanic (1979) of childhood symptomatology revealed that the young adults reported fewer symptoms and that they remembered their parents emphasized self-care and health promotive practices. Pratt (1973 and 1976) used self reports of two parents and one offspring between the age of 9 and 13 to investigate selected personal health practices, i.e., sleep, exercise, elimination, dental hygiene, smoking, alcohol consumption, and nutrition. She reported that one of the factors

influencing children's positive health is the positive health behavior of the parents. She also documented that a large majority of parents purposefully explain personal health procedures to their children, i.e., proper foods to eat, how to keep clean to maintain body health, and the effect of adequate sleep.

Further support for the position that the development of a child's resources and capabilities early in life are significant factors for later health practices was provided by Dielman, Leech, Becker, Rosenstock, Horvath & Radius (1982). Their examination of the relationship between health beliefs and health behaviors of parents and their children, age 6 to 17 years, suggested that at least two areas of children's health behavior — cigarette smoking and snacking between meals — are influenced by parental behavior and to a lesser extent by parental beliefs.

Another example of the influence of parental smoking behavior on children follows. The social factors related to cigarette smoking among 2,156 school aged children between the ages of 12 and 18 residing in Muscatine, Iowa, were surveyed via a confidential self-report questionnaire by Lauer, Akers, Massey & Clarke (1982). Abstinence and smoking by school aged children was closely related to the smoking behavior of the child's parents and friends. They further stated: "The group of respondents with parents who smoke had approximately twice the proportion of regular smokers, compared with those respondents whose parents never smoked" (Lauer et al., 1982, p. 423).

There is also growing documentation that parents exert influence over dietary and physical activity patterns (Haydon, 1987). Mothers

have been found to play a significant role in matters of nutritional habits and attitudes (Litman, 1974). Hertzler (1988) suggested that family dynamics can enhance or deter the use of food and nutrition information by children. She stated that the presence of aggression, marital disharmony or contempt between parents is the basis for the inappropriate or inconsistent use of food and thus influences the child's food behavior and coping skills. Specific examples of parental influence on dietary patterns follow.

Kintner, Boss & Johnson (1981) conducted an exploratory study utilizing mailed questionnaires and follow-up telephone interviews of 42 young families to determine the strength and direction of relationships between Moos Family Environment Variables and family food intake. While they concluded that their findings were tentative and that further investigation was needed, they indicated that the eating behaviors of family members revealed information about the nature of the family environment. Children's preferences were related to fathers' preferences (Bryan & Lowenberg, 1958) and familiarity with foods, as controlled by the family, was identified as a determinant of a child's eating patterns (Philips & Kolasa, 1980).

Gottlieb & Chen (1985) and Butcher (1983) noted in their multivariate studies that parental factors were the strongest correlates of a child's physical activity. Ross, Pate, Caspersen, Damberg & Svilar (1987) also reported that there is a strong correlation between the exercise habits of parents and those of their children. A survey of physical activities was administered to the parents of children in the first through the fourth grades who

participated in the National Children and Youth Fitness Study II. Parents rated their children's activity levels, hours of television watched, and involvement in community sponsored physical activity programs. Parents also provided personal information regarding a rating of their own activity level, number of days per week they engaged in vigorous activity for 30 or more continuous minutes, and the number of days each week they exercised at least 20 minutes with their child. The self-rated activity level of the parent(s) resembled the teachers' ratings of the activity levels of the children, their students. This study also revealed that fewer than 30 percent of the mothers and fathers participated in appropriate physical activity and that the frequency with which parents exercise with their children is directly related to the frequency of parental exercise.

Parental influence on the development of motivational attributes of their offspring. The influence of the family and parent(s) on the development of health beliefs, locus of control, and behavioral attribution has also been acknowledged as important (Bruhn & Parcel, 1982a). However, when beliefs, locus of control and attribution are used as motivational constructs in studies on the individual, they have not been found to predict consistently who does or does not practice positive health behavior (Cox et al., 1987). During the 1980s there has been growing support for the position that intrinsic motivation may be a significant contributor to an individual's health behavior (Cox, 1985; Cox et al., 1987; Deci, 1980). In particular, health self-determinism as described by Cox (1985) has been identified as a correlate of positive health behavior, health status,

and general well-being in adults. There is also evidence that health self-determinism reflects socioeconomic patterns. For example, older adults, less-educated individuals and males demonstrated less intrinsic motivation and were responsive to external forces which promote positive health behaviors (Cox et al., 1987; Cox & Wachs, 1985). When measured with children, intrinsic motivation varies systematically with children's learning styles and achievement (Cox, 1988).

Family variables. Relationships, those between and among family members, those between the members and the environment external to the family, and those between the family as a unit and the external environment, have also been acknowledged as important factors in facilitating health behavior (Mullen, 1983). Pratt (1976) suggested that personal health practices depend upon the structure of the family and the relationships among all the family members. She further concluded that the pattern of family relationships is significantly related to the composite health practices of the family group. She reported that positive health practices were present when regular and varied interaction occurred among family members, when parents encouraged personal autonomy, and when family members participated in activities outside the home. A study by Laskey & Eichelberger (1985) revealed that self-care practices were displayed by children whose parents provided a progressive, developmentally appropriate, transference of health self-care decision making. Although the influence of family relationships, also referred to as family functioning, has been identified as an important contributing factor to health behavior, the inclusion of a family functioning

measure has been virtually absent in studies examining health behavior (Campbell, 1987).

The variables of family type, birth order, and number of children have also been identified as contributing influences of health behavior (Campbell, 1987; Mullen, 1983). However, only one study comparing positive health behavior by family type, i.e.,dual parent and single parent, (Loveland-Cherry, 1986) and only one study examining positive health behavior of the female-headed single parent family (Duffy, 1986) could be located. Loveland-Cherry (1986) used a convenience sample of 41 white middle-class families, 21 female-headed single parent families and 20 dual parent families, with at least one child between the ages of 8 and 14. She found that the children's scores, the mother's scores and the total family unit scores on personal health practices did not differ by family type. However, a greater degree of score variance for children from single parent families existed. Although Duffy's (1986) investigation of the health behavior of the single parent family focused on the mother's report of specific practices rather than on the comparison of practices between mother and child, she noted that the mothers identified social support as a major determinant of the their practice of health behavior. A recent publication by Duffy (1988) urges researchers to further investigate health behavior from the perspective of family type. The literature suggesting that the single parent family experiences different stressors supports this position (Berman & Turk, 1981; Coletta, 1983; Herman, 1977; Horowitz & Purdue, 1977; McLanahan, 1983; McLanahan & Booth, 1989; Smith,

1980). A comparison of health behavior by family type could suggest needed resources specific to family type.

Environmental Influences

A range of environmental influences (social, political, legal and economic factors) external to the individual and family have been identified in relation to health behavior. Social institutions, e.g., schools, churches, political and social organizations, the health care industry, and the work setting, influence the individual and the family (Mullen, 1983). Since the focus of this study is the family's influence on health behavior, many of these environmental influences are not appropriate. However, one economic variable, family income, the total income available to the family, has been selected because it exerts significant effects on the health and health behavior of family members, e.g., the type and quantity of contact with health care providers, the use of preventive health services, control of environmental hazards, and children's self-esteem (Child Trends, Inc., 1980; Select Panel for the Promotion of Child Health, 1981; U.S. Department of Health and Human Services, 1980). Income relates positively with the adoption of positive health behavior (Berkman & Breslow, 1983; Coburn & Pope, 1974; Kasl & Cobb, 1966; Kirscht, 1983) and the lack of financial resources has been cited as an important deterent of positive health behavior by female headed single parent families (Duffy, 1986).

Health Behavior

Surveys undertaken on various populations provide much of the information known about health behavior. Findings can be related to health-care-based preventive practices or to those practices which

are self-initiated. Health-care-based preventive practices include asymptomatic routine physical and dental examinations, pap tests, immunizations, and a variety of health screenings, e. g., breast examination by a health professional. Practices outside the health care system which are self-initiated and suggest personal control include safety practices, e.g., household, automotive and pedestrian practices and the reduction of environmental hazards, nutritional habits, personal care and hygiene, sleep and relaxation, physical exercise, and the avoidance of substance use, e. g., drugs, tobacco and alcohol (Bausell, 1985; Berkman & Breslow, 1983; Harris & Guten, 1979; Kasl & Cobb, 1966; Kirscht, 1983; Salovey et al., 1987). As a result, past investigations have focused on one or multiple, similar or dissimilar, practices. The studies previously described support this conclusion.

Discussion among and between health behavior researchers has focused on the dimensionality of health behavior. The evidence is mounting in support of multidimensionality (Green, 1970; Harris & Guten, 1979; Kulbok, 1985; Langlie, 1977). For example, Green (1970), and Langlie (1977, 1979) found that medically based preventive behaviors are modestly related (correlation from .2 to .4 range). However, Kulbok (1983) stated that a review of 30 relevant studies revealed that the concept of health behavior was often ambiguous and that little attention was given to its dimensionality. Health behavior is conceptualized from both perspectives in this study. The nine dimensions or factors of health behavior and their associated practices identified through concensus by a group of researchers interested in the development of health behavior in

children (Bruhn & Parcel, 1982a) and one additional dimension, personal care, identified by the investigator as a result of the literature review reflect the multidimensional perspective. The unidimensional perspective is reflected in the second approach to assess health behavior, a 30 item scale (Harris & Guten, 1979).

Health Outcome

The dimensions and specific variables previously discussed contribute to the health outcome, the end result. Since there is no concensus regarding the definition of health outcome, wide variation of the health outcome variables, e.g., mortality, morbidity (severity of illness), risk status, and personal health status, exists across health behavior studies. This lack of conformity in health outcome variables has also contributed to the use of different measurement approaches. Both subjective and objective assessment of these outcomes has occurred: (a) self-report of symptoms, perceived well-being and health practices, and (b) measures of physical, psychological and social functioning, e.g., personal height, weight, blood pressure, coping mechanisms, and relationships. Approaches used to measure health outcome are discussed under Methodological Issues.

Unit of Analysis

The individual adult has been the primary unit of analysis in past investigations of health behavior. Although researchers have attempted to focus on the influence of the family and specify that the family is the unit of analysis, data have generally been sought from one individual, usually the wife or mother. In those instances when comparisons between parent-child behaviors have been made, the

information on both mother and child has been obtained from the mother and the comparison restricted to the mother-child dyad. Rarely has information about the health behavior of three or more family members been sought.

Family researchers question the accuracy of viewing individual and dyad data as representative of the family. They propose that if the family is to be the unit of analysis then information from and about multiple members needs to be secured (Schumm et al., 1985). Only two studies, Loveland-Cherry (1986) and Pratt (1976), could be located in which three family members, both parents and their child, each provided information about a broad array of personal health practices. One additional study (Blaxter & Paterson, 1982) was located in which three family members representing three different generations provided information about their respective health practices.

Family Characteristics

In the 1980s researchers interested in the family suggested that the family may reflect unique characteristics. They proposed that these characteristics, also referred to as family properties, family attributes, family scores, aggregate family components, or family interactive measures (Brown & Kidwell, 1982; Ezell, 1982; Gillis, 1983; Klein, 1984), reflect the existence of a pattern between family members. However, the identification of family characteristics has been limited. The characteristics of family functioning and marital quality/satisfaction have been the primary focal points of past investigations. Ezell (1982) extended the focus of the measure of social well-being by investigating "quality of life" as a family

characteristic. The investigation of family functioning, health behavior, health status, and intrinsic motivation as family characteristics could provide additional insight into the influence of the family. Although previous studies (Loveland-Cherry, 1986; Pratt, 1976) have alluded to the presence of a health behavior family characteristic, the term family health behavior was not specified nor included in the stated purposes of their investigations. However, the study of three generations by Blaxter & Paterson (1982) identified the potential for "a family health culture" and Schor, Starfield, Stidley & Hankin (1987) investigated a perceived family variable which they described as family health care utilization. No evidence could be located demonstrating that either intrinsic motivation or health status has been conceptualized as a potential family system characteristic.

Methodological Issues

The discussion of methodological issues focuses on the measurement of health behavior, health outcomes, and family characteristics.

Health Behavior Measurement

The measurement of health behavior as perceived from a developmental perspective is in its infancy. As a result, current health behavior measurement instruments differ widely in regard to the questions asked and the format used. Contributing factors include: (a) the differing purposes of the studies, (b) the skills and philosophy of the researchers, (c) the lack of a common conceptualization about what specific practices should be included in health behavior, (d) differing viewpoints about how health behavior

should be measured, i.e., direct/indirect observation, self-report, other report, and (e) the absence of developmentally appropriate reliable and valid instruments. These factors have contributed to inadequate information about the development and psychometric properties of many potentially valuable and useful measurement instruments.

Health Outcome Measurement

The approach selected to measure health outcome has been dependent upon the purpose of the investigation, the proposed conceptual framework, and the availability of appropriate measurement instruments. Several measurement approaches of health outcome are available. One approach used to measure health status was described by Harnly and Williams (1987). Healthy functioning was measured by accumulating data in six different areas: (a) medical and health events, (b) perceived health, (c) psychosocial well-being, (d) physical activity, (e) nutrition, and (f) the use of substances, i.e., alcohol and drugs. Belloc & Breslow (1972) and Breslow & Enstrom (1980) examined current physical health status in relation to the presence of seven positive health practices (seven to eight hours of sleep, controlling one's weight, regular exercise, limiting alcohol consumption to fewer than five drinks per sitting, never having smoked cigarettes, eating breakfast almost daily, and seldom eating snacks). Berkman & Breslow (1983) examined five of these practices, i.e., cigarette smoking, physical activity, alcohol consumption, obesity and sleeping patterns, and mortality. Although Ware (1976) measured health status by evaluating perceived global personal well-being, Berkely, Israel and Stokes III (1987, p.171S)

proposed that the evaluation of health outcome include: (a) current health status, i.e., physical, mental and social functioning, and (b) risk status, i.e., "the best estimate of the probability that an individual in a given health state at one time period will move to a state of dysfunction over time."

The development of health outcome measures involves problems with definitions, reliability, validity, sensitivity and applicability. Some established instruments developed to measure health are: (a) the Cornell Medical Index (Boardman, 1951), (b) the measure of health perceptions (Ware, 1976), (c) the Sickness Impact Profile (Bergner, 1978), and (d) the Nottingham Health Profile (McEwen, Hunt and McKenna, 1987). According to McEwen et al. (1987), the instruments are frequently too long or complicated, have scoring systems which reflect the investigator's view not the respondent's, have measures which are focused too narrowly, and derive a single score from multiple item responses.

Family Characteristic Measurement

Although obtaining data from multiple family members, also referred to as relational data (Fisher et al., 1985), has been recognized as highly desirable in the assessment of a family characteristic, the approach to be taken in the analysis of the data has been a point of discussion among researchers. While there is general consensus that the investigation of congruence of relational data can reveal a structural measure of the variable, there are significant differences of opinion regarding the method to be used to examine congruence.

Fisher et al. (1985) proposed that four assumptions provide the basis for relational data: (a) individual data have been collected, (b) each scale or dimension comprises more than one item of response, (c) the data suggest continuous or ordinal level measurement, and (d) two or more individual scores in each family are available.

Klein (1984) suggested that five models or techniques to assess the presence of a family characteristic exist. He further suggested that any or all of the models may be applicable and that the application of more than one model may reveal which is most appropriate for the data. The five models are:

1. The Additive Model: the sum or average of the scores is viewed as the best estimate of the family characteristic. If the number of informants varies from family to family, then the average score of all respondents is used to standardize the measure across families. This model lends itself to those behaviors and characteristics which have an objective and concrete quality.

2. The Discrepancy Score Model: the discrepancy (the property of dispersion) between reports is taken as the measure of the family characteristic. If there are only two respondents, the difference or ratio reflects this model. A standard deviation or mean difference score would be appropriate for multiple respondents. Since the model assumes that no systematic measurement error exists in the distribution of reports, it would be possible to discover different types of families.

3. The Disjunctive Model: although this model treats reports as equally reliable and valid, it assumes there are multiple discrete realities in the family. The reports from multiple repondents are

analyzed independently but theoretically linked to antecedent and consequent variables. This model is most appropriate when data are self-reported attitudes of members or perceptions of the attitudes of other members.

4. The Weighted Model: since it can be argued that biased and measurement errors can vary across respondent groups, this model utilizes specified criteria to weigh some reports as more reflective of reality. This is similar to the Additive Model, but reports do not have equal value. This model appears to be most appropriate when differences in the credibility of responses is suspected.

5. The Conjunctive Model: This model combines reports according to their convergence. It assumes that reports are equally valid and reliable and that multiple discrete family realities exist. One or several covariance-based grouping techniques can be utilized, e.g., analysis of variance with repeated measures, factor analysis, and cluster analysis. This model is utilized when families are conceptualized as integrated groups or when information is collected from multiple family members.

Klein (1984, p. 10) reviewed 1,268 articles published in the Journal of Marriage and the Family during the 24 year period from 1959 through 1982 to assess which of these models had been used with data collected from multiple family members. These articles were assumed to be representative of family focused investigations. Content analysis of these articles revealed the following: (a) few of the articles reported collecting data from two or more family members, (b) approximately half of these studies attempted to manipulate the data in a meaningful way, (c) the Discrepancy Score

and Disjunctive Models were most frequently selected, (d) the variables of interest and social units of analysis were limited, and (e) "the systematic comparison of alternative strategies was uncommon."

The appropriateness of these models has been the focus of considerable debate. According to Fisher et al. (1985), there are several problems in the use of the arithmetic mean (Additive Model) as a relational score. They contend that: (a) it may not be conceptually meaningful, e.g., mean scores do not reflect differences of age among family members or differences in power or influence of family members, (b) the distribution of mean scores of several families may be less than that of the individual scores, (c) the differences between or among the contributing scores are not taken into account, and (d) the order of the scores is not considered. They concluded that while mean scores may severely reduce the information contained in the original scores and potentially distort the data, the mean may be appropriate when the discrepancy between the scores is small and a similar range of scores is reflected within other families in the sample.

The use of the simple mean discrepant score (Discrepancy Score Model) can be conceptually meaningful but also presents methodological problems (Fisher et al., 1985). For example: (a) the discrepancy could occur anywhere along a scale, i.e., between 2 and 12 or 48 to 58 in a 60 point range, (b) the score tends to be less reliable and therefore reduces the attainment of statistical levels of significance, and (c) no additional information beyond correlations of family member scores and the dependent variable is

available. A different statistical approach is suggested in the analysis of data from three or more family members when using the Discrepancy Score Model, i.e., the calculation of a family mean score by summing each member's mean minus the family mean (Klein, 1984).

The Disjunctive Model has been used extensively to assess dyad rather than triad data. Klein (1984) suggested that researchers have used aggregate scores to describe samples rather than using theory to link the aggregated scores from multiple family members to antecedent or consequent variables. Although there has been been some support for the use of the Weighted Model, concern arises from its assumption that the weighting of the members' data may be inaccurate. Since the weighting is determined by the investigator, it may represent investigator bias and therefore not present a realistic picture of the variable of interest within the family context.

Although there is growing support for the use of the Conjunctive Model, the approach has been viewed as complex due to the degree of sophistication needed to conduct the statistical analyses. It is possible that this has been a deterent in its use. One approach which has been strongly supported by Ball, McKenry, and Price-Bonham (1983) is the use of analysis of variance with repeated measures. This approach investigates the covariance between family dyads simultaneously and calculates a within-family factor which indicates support or non-support of congruency of multiple family member data.

This brief review of the models (Klein, 1984) suggests that the investigator's selection of the conceptual model and statistical approach is dependent upon the theoretical framework, the scales

employed, the availability of appropriate statistical packages, and the analytic expertise of the researcher.

Multi-member family data, i.e., relational data, can be used to examine the perceptions of family members of a common event or the behavior of family members. This data approach has been primarily used to examine marital satisfaction, and minimally used to examine family functioning and health behavior; no evidence was found to suggest that relational data have been used to examine either perceived health status or intrinsic motivation. The investigations which examined health practices of parents and their children (Loveland-Cherry, 1986; Pratt, 1976) will be considered further in the discussion of this study's findings.

CHAPTER III

METHODOLOGY

This chapter presents a description of: (a) the research design including the sampling procedure and data collection, (b) the human subject protection procedures, (c) the measurement instruments, (d) the scoring procedures, (e) the statistical methods, and (f) the data analysis procedures.

Research Design

The purposes of this cross-sectional design of multiple members in dual and single parent families were threefold: (a) to explore the presence of family characteristics by comparing family members' perceptions of personal health status, personal motivation, personal positive health behavior and family functioning, (b) to investigate selected relationships between the identified family characteristics, and (c) to describe selected relationships between the family characteristics and the family realm variables of family type and family income. The family, defined as dual parent and single parent families each with a young adolescent between the ages of 13 and 16, was the unit of analysis. Each parent and adolescent completed an individual questionnaire which incorporated the same measures of the variables of interest. A diagrammatic representation of the study

design is provided in Figure 4.

Measures	Comparison Groups				
	Dual parent family			Single-parent family	
	Father	Mother	Child	Mother	Child
I. Health status					
1. Ware Index	x	x	x	x	x
II. Intrinsic motivation					
1. HSDI	x	x	x	x	x
III. Psychosocial and behavioral health behavior					
1. The Self-Care Inventory (SCI)	x	x	x	x	x
2. Health Protective Behaviors Questionnaire-Part 2 (HPBQ-Part 2)	x	x	x	x	x
3. Health Practices Survey (HPS)	x	x	x	x	x
IV. Family functioning					
1. General Functioning Subscale of the McMaster Family Assessment Device	x	x	x	x	x
V. Demographic data	x	x	x	x	x

Figure 4: Diagrammatic Representation of the Study Design

The guiding theoretical definitions and their corresponding operational definitions are provided in Chapter I (pp. 18-22).

Sampling Procedure

Due to the specificity of the family characteristics, the limitations of time and resources, and the difficulties inherent in locating families through sources in the Greater Lansing Area Community, e.g., clinics, health department, and schools, a stratified random sample of religious congregations in a specific

geographic portion of this same area was selected as the vehicle for family identification. The fact that religious affiliation and frequent church attendance have been associated with positive health behavior (Berkman & Breslow, 1983) was not viewed as a deterrent factor since all participating families had a religious affiliation. While a control group of families with no religious affiliation was initially considered, the identification of such families who met the proposed criteria was viewed as problematic and therefore not pursued.

Initially this investigator contacted the past president of the Lansing Area Congregations Together in Service (Lansing A.C.T.S.) and received the organization's 1987-88 DIRECTORY OF CHURCHES. One hundred and fifty-one churches representing 63 different denominations were listed within the following selected geographical boundaries: (a) the Ingham County, MI line on the North, (b) Waverly Road on the West, (c) Jolly Road on the South, and (d) the city of East Lansing's line on the East. These boundaries were selected because they coincided with the 1980 census tract boundaries (U. S. Bureau of the Census, 1980).

In order to secure a stratified random sample of these churches, the following process was used. A map with the census tract boundaries and census tract numbers was used to determine the location of each church by census tract (U. S. Bureau of the Census, 1980). Once the census tract number was identified, the selected items used for stratification, i.e., per cent of high school graduates and median household income were secured for each census tract (U. S. Bureau of the Census, 1980). Then each church's name,

address, telephone number, census tract number, the percent of high school graduates, and the median household income of the census tract were noted on a reference card.

Since there was wide variation in the percent of high school graduates and the median household income, categories which reflected the range of the census data were constructed. The categories for the percent of high school graduates were: (a) low (49.4 % through 63.7 %), medium (66.0 % through 77.3 %), and high (81.0 % through 100.0 %). The categories for the median household income were: low ($4,212 through $13,494), medium ($14,163 through $19,245), and high ($20,077 through $37,238). A comparison of the percent of high school graduates to median household income by census tract revealed that low, medium, and high categories of the percent of high school graduates were usually accompanied by the corresponding median income category. Therefore, only the percent of high school graduates by census tract was used for the selection process. Of the 151 stratified churches, 45 churches were identified in the low category, 62 churches were identified in the medium category and 44 churches were identified in the high category.

Fifteen churches, five per category, were then randomly selected by the investigator. This was followed by a telephone call by the investigator to each church to obtain the name and title of the religious leader and to verify the church's address. An introductory letter (Appendix A) was then forwarded to each religious leader. The content of the letter included: (a) the intent of the study, (b) who was eligible to participate, (c) what participation meant, (d) the incentives for participation, and (e) the investigator's name and

phone number. The letter was followed several days later by a telephone call to the religious leader by the investigator to review the information in the letter, answer questions, and determine if the leader would assist in the identification of the families.

These 15 contacts revealed that a greater number of churches would need to be contacted. Although these religious leaders indicated that they would be interested in assisting with the identification of families, they also indicated that there were few families with the desired characteristics in their congregations. They stated that the parents of first born children, now between the ages of 13 and 16, were part of the generation who had left the church during the late 1960s and early 1970s. Since the goal of approximately 30 to 35 dual parent families and 30 to 35 single parent families appeared impossible to achieve with this group of 15 randomly selected churches, this investigator decided to continue to select churches randomly in the same configuration, five churches in each category for a total of 15, until the desired number of families was identified. The investigator also decided to discontinue contacting a church after four unsuccessful telephone attempts and to select another church representing the same category. It was assumed that this selection process would yield the number of families needed and that they would be representative of families in other churches in the specified geographical area.

As a result of this selection process a total of 120 of the 151 stratified churches were randomly selected. Of this number 81 leaders indicated support and interest in the study, 11 leaders indicated they did not wish to participate, 23 leaders could not be

contacted by telephone, and five churches were found to have no currently listed telephone number. Table 1 reflects this distribution, and the distribution of all the stratified churches by the low, medium, and high categories of percent of high school graduates. Of the 81 churches where the leaders indicated support and interest, only 39 yielded names of families with the characteristics of interest. The distribution of these churches by the low, medium, and high categories was 8, 18, and 13 respectively.

Table 1.
Summary of Church Participation by Low, Medium, and High Categories of Percent of High School Graduates.

Church Participation	Categories of High School Graduates			
	Low	Medium	High	Total
Interested	22	30	29	81
Not interested	4	3	4	11
No reponse	13	7	3	23
Other	1	3	1	5
Not selected	5	19	7	31
Total	45	62	44	151

Data Collection

The criteria for family participation were influenced by: (a) the lack of available information about health behavior in dual parent and single parent families, (b) the perceptions of educators and researchers that there are age related health behaviors which are

relatively orderly, predictable and measureable (Bruhn & Parcel, 1982a, 1982b; Vogel, 1987), and (c) the investigator's perception of the availability of families with the characteristics of interest in the specified geographic area.

The 39 churches yielded a potential pool of 120 families, i.e., 20 single parent families and 100 dual parent familes. While 16 of the single parent families agreed to participate, data were collected from only 13. Although 65 dual parent families agreed to participate, data were collected from only 60. Reasons given by the families who agreed but did not participate were: "We can't work it into our schedule after all," "We've changed our minds," and "My child has gone to stay with a relative." The total number of participating families, 73, represented 35 different churches. The distribution of these churches by the low, medium, and high categories of percent of high school graduates was 8, 16, and 11 respectively. The data were collected in Ingham County, Michigan between June 1, 1989 and September 3, 1989.

It was noted early in the family identification phase (June, 1989) that the number of single parent families identified was considerably lower than anticipated. After consultation with committee members, the investigator decided that churches should continue to be sampled, and that families should continue to be contacted through August, 1989. It was anticipated that this would assure an adequate number of dual parent families while providing increased opportunity for the identification of the single parent families.

The actual mechanism of family identification was determined by either the religious leader, or the leader in consultation with an advisory board. Usually the leader would contact the family to explain the study and determine the family's interest in participating and then provide the investigator with the family's name, address, and phone number. However, several leaders provided this information directly to the investigator without prior contact with the family. Upon receipt of this information, the investigator contacted each family by telephone and talked with a parent. These conversations included an explanation of the study's intent, a review of the criteria for selection, and an assessment of the family's interest in participating in the study. If the parents expressed interest, they usually stated that they wished to discuss it further with the other members who would be involved. A date and time for a follow-up telephone call regarding their participation was then arranged.

When a family indicated it would participate, a confirmatory letter (Appendix B) was forwarded to the family. A consent form (Appendix C) which each parent and adolescent participating in the study was to complete prior to data collection, a list of dates and locations where all the family members could complete their individual study questionnaires on the same selected date (Appendix D), and a stamped self-addressed return envelope were also enclosed. The family members were asked to complete the consent form, check the selected date and location on the list and return both to the investigator at least one week prior to the selected date. This allowed the investigator to know the number of families to expect at

each location and make last minute arrangements for appropriate accommodations, i.e., room size, tables and chairs. Each family was also contacted by telephone by the investigator three to five days before the day selected to insure its participation. In return for a family's participation and as agreed upon with the family in the consent form, the investigator forwarded a $10.00 contribution on behalf of the family to the church of their choice following their participation.

The locations, the data collection sites, were the physical facilities of churches which had identified families for the study. Since families indicated during the telephone conversations that evenings during the week were best, most of the sites were scheduled Monday through Thursday at 7:30 p.m.. A total of 28 dates involving 17 different locations throughout the geographical area were scheduled and utilized. Seven families requested a different location; therefore, the investigator met five families in their homes and two families at the Lansing Public Library, Lansing, MI. This approach allowed the investigator to confirm the participation of each family by identifying it by name upon arrival, to disseminate and collect data, to standardize the introductory remarks about the completion of the study questionnaire, and to answer questions. It also controlled discussion and comparison of responses between family members. Although five family members completed the questionnaire in approximately 30 minutes and two family members completed the questionnaire in one hour and 15 minutes, 199 family members completed the questionnaire in approximately 45-50 minutes.

Human Subjects Protection Procedures

There were no obvious physical or psychological risks to the individuals and families participating in this study. Although a potential legal risk did exist due to questions about alcohol and drug use, the following procedures were devised to assure anonymity to the individuals and families. The procedures were reviewed by the University Committee on Research Involving Human Subjects (UCRIHS), Michigan State University, March, 1989.

1. Only the investigator had contact with the families to confirm their participation and mail summary study findings.
2. The investigator was present at each data collection site to assure proper data collection approaches were followed.
3. Although the names of the participating families were known, the information the individuals provided remained anonymous.
4. The family name was used only to confirm that the family present was the family which agreed to participate and that a signed consent form had been received. Additional consent forms were available as needed.
5. The adolescent in each family selected a family packet from a box of packets prepared for the dual and single parent families. A packet was composed of three envelopes for the dual parent family and two envelopes for the single parent family. A questionnaire was in each envelope.
6. Each participating family member received an envelope with a questionnaire booklet. The booklet was coded so that the information could be later related to others in the same family, i.e., by family type, by number, and by individual status. Dual

parent families were identified as D1, D2, D3,...D60 and single parent families were identified as S1, S2, S3,...S13. The status of the individual was identified as F = father, M = mother, and A = adolescent. Examples of the complete code are D1F, D1M, and D1A for a dual parent family and S1M and S1A for a single parent family.

7. The initial page in the questionnaire requested that the respondent refrain from placing his or her name on the questionnaire and stated that the respondent was free not to answer any item.

8. Each participant was asked to insert the completed questionnaire into its envelope and place the envelope in a collection receptacle upon exiting the site. This receptacle was a sealed box with a slot on the top. Envelopes were collected in the box until no additional envelopes could be inserted by the participants.

The Measurement Instruments

Each participating parent and adolescent completed a study questionnaire which was composed of several measurement sections. The sections are presented in the following order: (a) The Health Self-Determinism Index (HSDI), (b) The Self-Care Inventory (SCI), (c) The Health Protective Behaviors Questionnaire - Part 2 (HPBQ-Part 2), (d) The Health Practices Survey (HPS), (e) The General Functioning Subscale of the McMaster Family Assessment Device (FAD-7), and (f) Demographic Information which includes Health Status (WI). The criteria used in the selection of the measures were: (a) the method for data collection matched the purpose and nature of the study, (b)

the measure was applicable regarding age and educational appropriateness, (c) the measure exhibited reasonable psychometric properties of reliability and validity, and (d) the measure demonstrated economy of measurement regarding dollar cost, preparation time, and ease to take and score (Nunnally, 1978; Windsor, Baranowski, Clark & Cutter, 1984).

The Health Self-Determinism Index (HSDI)

The HSDI (Appendix E), designed to measure intrinsic motivation in health behavior, was developed by Cox (1985). It was derived from the author's clinical nursing practice, from current theoretical perspectives on motivation and health and specifically from Deci's cognitive evaluation theory (Cox, 1985). Motivation is viewed as "an important antecedent variable and correlate of the client's cognitive and affective responses to a health concern, the type of health care intervention and interaction expected by the client, and the client's health outcomes subsequent to this intervention" (Cox, 1985, p. 177).

The HSDI demonstrates the multidimensionality of motivation through its four subscales: self-determined health judgments, self-determined health behavior, perceived competency in health matters, and internal-external cue responsiveness. It is comprised of 17 Likert format items, alternately worded between an intrinsic and extrinsic orientation, and is scored and analyzed in the following manner:

> Each intrinsically worded item is scored on a scale from 1 to 5; a score of 5 indicates the maximum intrinsic response and a score of 1 indicates the maximum extrinsic response. Similarly, each extrinsically worded item is on a 5-point scale where 5 indicates the maximum extrinsic response and 1 indicates the maximum intrinsic

> response. For analysis, all extrinsically worded items are reverse scored (e.g., 1=5, 5=1) so that all items are scored in the same direction (e.g., 5=intrinsic, 1=extrinsic) (Cox, 1985, p.179).

A total HSDI score is obtained by adding all item scores. As a result the range of scores is from 17 (most extrinsic) to 85 (most intrinsic).

This self-administered paper-and-pencil measure can be easily completed in seven to ten minutes, was designed for an eighth grade reading level and has demonstrated highly acceptable alpha coefficients across six studies: .84 (N=199), .80 (N=68), .87 (N=54), .83 (N=55), .81 (N=72), and .78 (N=379) (Cox et al., 1987). A two-week test-retest correlation of .86 was also obtained (Cox & Wachs, 1985). Factorial validity, the presence of the subscales, was confirmed in two studies (Cox, 1985; Cox et al., 1987).

The examination for covariance of the HSDI and its subscales and sociodemographic variables revealed that the respondent who scores as intrinsically motivated on the subscales of health matters, judgment, and internal-external cue responsiveness, is more likely to be younger, female, and better educated. On the behavior subscale, age, gender, and income have been identified as the strongest predictors, i.e., older people, males, and respondents with less income score more extrinsically. In addition, it was found that women and individuals with higher incomes and education project competence in their health decisions and behaviors (Cox et al., 1987).

One study (Macius, 1985) demonstrated that the HSDI total score and the competency subscale were significant predictors of the amount and frequency of exercise, nutrition and sleep and that they explained 27% of the variance in the positive behaviors practiced.

Cox et al. (1987) reported that as the functional status and level of well-being of at-risk elders increased, the elders achieved higher scores on the HSDI which indicated they were more intrinsically motivated.

The Self-Care Inventory (SCI)

The Self-Care Inventory used in this study is a modification of the original SCI. Information on the development of the SCI and subsequent modifications by this investigator follow.

The SCI as reported by Hager (1984) is a 77 item self-report paper and pencil questionnaire which assesses the frequency with which a person uses health behavior of a psychosocial nature. The items focus on habits which can be learned, are positive and are health oriented. The respondent selects and circles a response from a range of responses for each item. The responses on a five point Likert scale are never, rarely, sometimes, most of the time, and always. They correspond to the awarding of 0, 1, 2, 3, and 4 points respectively. This means that a score of zero indicates the least positive use of a psychosocial health practice while a score of four connotes the most positive use of a psychosocial health practice. A total SCI score is secured by adding the points of all items circled by the respondent and dividing the total number by the number of items for which a response is given.

Item selection was based upon: (a) a review of literature which included social support, stress and coping, family health and prevention, and (b) the input from a panel of experts. The Self-Care Theory of nursing proposed by Orem and a model of prevention proposed by the 1978 Task Panel on Prevention, an adjunct panel to the

Commission on Mental Health, were the SCI's major theoretical bases (Hager, 1984). The SCI items were initially organized into self-care categories reflected in clinical situations, i.e., cognitive, structuring, self-nourishment, assertiveness, expression, physical stress reducers, receptivity and sources of support.

A pilot study with a sample of 34 college senior nursing students indicated that the SCI could be completed in approximately 15 minutes and identified items requiring word alteration to increase clarity (Hager, 1984). Test-retest reliability was conducted to determine instrument stability with another sample of 76 college students; the overall result was an $r = 0.68$ while the reliability for each item ranged from 0.47 to 0.92. A full inter-item correlation matrix was constructed to evaluate the validity of item placement by theoretical categories. While the alpha coefficients for each category ranged from 0.66 to 0.85 indicating moderately high internal consistency within categories, the categories were not found to be distinct from each other. This suggested that the organizing categorical approach was not valid. The author suggested focusing on the individual health habits or all the habits as a unidimensional construct in future studies utilizing the SCI. Internal consistency measures, via Cronbach's alpha, secured twice on a third sample of 64 college senior nursing students at a year and a half interval were 0.888 and 0.915 respectively.

Although the psychometric properties of this measurement instrument have not been fully explored, it was the only instrument located which assessed an array of psychosocial positive health practices. Since the unit of interest in this investigation was the

family, Hager (personal communication, November, 1988) suggested that all items assessing sexual relationships be deleted and that the language be assessed for its appropriateness for the young adolescent. The items assessing sexual relationships were deleted and the remaining items were reviewed for language appropriateness by the investigator and an eighth grade English teacher in a local school district. Words deemed inappropriate for this grade were replaced as needed. The point system was also changed from 0 through 4 to 1 through 5 to reflect the point system used in the other selected health instruments. The revised SCI composed of 69 items was then completed by nine seventh and eighth grade girl scouts in communities adjacent to the specified geographic area. Suggestions from these scouts resulted in additional language modifications. The resulting 69 item SCI (Appendix F) was used in this study.

The Health Protective Behaviors Questionnaire (HPBQ-Part 2)

The Health Protective Behaviors Questionnaire (HPBQ-Part 2) is the second part of a two part questionnaire developed by Turk, Rudy, & Salovey (1984) and modified by Salovey, et al. (1987). It is based upon a large exploratory survey study conducted by Harris and Guten (1979) designed to explore the concept of health protective behavior and its empirical dimensions. Using a stratified-cluster-sampling design of households in a large metropolitan area, 842 randomly selected repondents were interviewed and asked to identify activities they performed which protected their health. Health protective behavior was defined as "...any behavior performed by a person, regardless of his or her perceived or actual health status, in order to protect, promote, or maintain his or her health, whether or not

such behavior is objectively effective toward that end" (Harris & Guten, 1979, p. 18). Open ended questions and a card sort consisting of 30 protective health behaviors representing a broad sample of behaviors were used to gather the data. Social desirability effects were reduced by having the respondents perform a double card sort. Based upon an open ended question regarding practices performed, three types of behavior concerning everyday health habits were most often reported: nutrition, sleep/rest and exercise. The result of the card sort was similar. The mean number of behaviors performed was 12. As a result of cluster analysis of the card sort data, five factors emerged that included 18 of the 30 items. The factors were labeled health practices, safety practices, preventive health care, environmental hazard avoidance, and harmful substance abuse. Harris and Guten (1979) concluded that while the clusters were not composed of highly related items "...they are the 'best' clusters identifiable from among the 30 card-sort items" (p.23).

The card sort of the 30 health protective behaviors was converted into a self-report questionnaire by Brown & McCreedy (1986). They asked 386 respondents to check one of these responses for each health behavior: "always performed", "almost always performed", "sometimes performed", and "never performed". Responses of "always performed" and "almost always performed" were awarded one point while responses of "sometimes performed" and "never performed" were awarded zero points. Therefore, the range was from 0 to 30. No additional information regarding the combining of responses was given. A Cronbach's alpha of .76 for the study indicated reasonable reliability of the measure. The mean number of behaviors performed

was 17.2; the behaviors of nutrition, sleep, and exercise were practiced most frequently. Factor analysis was not repeated.

The Health Protective Behavior Questionnaire (HPBQ) as discussed by Salovey et al. (1987) represents another modification of the original 30 item card sort developed by Harris and Guten (1979). Part 1 is designed to assess general attitudes about health protective behaviors while Part 2 is designed to assess the frequency of the health protective behaviors. Each contains a list of the original 30 health protective behaviors. However, a 7-point scale with end point designations of "very frequently = 7" and "never = 1" was adopted. When the points for all items in each part are summed and divided by the number of items with a response, two total scores result.

Following the administration of the HPBQ to 180 respondents, their attitude ratings of the behaviors were factor analyzed to determine item clusters. Four factors, labeled as General Safety Practices, Weight Control, Rest and Relaxation, and Medical Avoidance, were identified. Items were reviewed for "...convergent validity (defined as a correlation with the factor 0.45) and discriminant validity (considered satisfactory if the magnitude between the highest and second highest factor loading was 0.15)." (Salovey et al., 1987, pp.198). Ten items did not display adequate discriminant validity and were not incorporated into further analysis. Due to inadequate item to scale correlation, another item was deleted.

Internal consistency of the individual scales was evaluted by Cronback's alpha. The alpha coefficient for Safety Practices (.85)

was favorable, while those for Weight Control (.68), Rest and Relaxation (.53), and Medical Avoidance (.57), were less satisfactory. The authors concluded that these scales appear to be measuring distinct health-protective constructs because intercorrelations among the scales were substantially lower than the reliability estimates. An alpha coefficient for the total scale was not stated.

Although the HPBQ-Part 1 focused on attitude, the HPBQ-Part 2 focused on frequency of health behavior; the latter was viewed by this investigator as the most relevant of the two measures for this study. No information detailing its psychometric properties was cited by Salovey et al. (1987). The HPBQ-Part 2 (Appendix G) was used in this study because: (a) it incorporated the majority of the areas and practices identified by Bruhn & Parcel (1982a), (b) it included practices appropriate for the young adolescent and the parent(s), and (c) it could be completed quickly and easily.

The Health Practices Survey (HPS)

Although the HPBQ-Part 2 included 30 positive health practices, all the practices of interest as identified by the researchers concerned with children's health behavior (Bruhn & Parcel, 1982a) were not included. Therefore, a second instrument focusing on the measurement of behavioral health practices appropriate for the young adolescent and the adolescent's parent(s) was sought.

This investigator concluded that previously developed measures were not appropriate for this study. This conclusion was the result of an extensive review of references describing health behavior questionnaires for adults and/or the young adolescent (Michigan

School Health Association & Michigan Health Council, 1983; Office of Disease Prevention and Health Promotion, Health Information Center, 1987; Rodale, 1984; Solleder, 1986; Vogel, 1987) and a review of selected questionnaires: An Inventory of Health Knowledge, Attitudes, and Practices for Students in Grades 4-6 and 7-9 (Abt Associates, 1984), InnerView Health Assessment (National Computer Systems, 1986), the Michigan Educational Assessment Program Student Assessment Booklets, Grades 4, 7, and 10 (Michigan State Board of Education, 1985), Personal Lifestyle Questionnaire (Muhlenkamp & Brown, 1983), TestWell: A Self Scoring Wellness Assessment Questionnaire (National Wellness Institute, 1983), and The Health-Promoting Lifestyle Profile (Walker, Sechrist & Pender, 1987).

The questionnaires: (a) did not closely correspond to the nine areas and 23 health behaviors identified by Bruhn & Parcel (1982a), (b) were not developmentally appropriate for the young adolescent and parent(s), (c) usually included too few health practices, and (d) included items of a general rather than a specific nature. Therefore, the development of a new instrument, the Health Practices Survey (HPS) was undertaken. A description of its developmental process follows; the process was guided by the suggestions of Nunnally (1978) and Windsor et al. (1984).

Although the nine areas of health behavior and their accompanying 23 health practices provided the theoretical framework for the HPS, the HPS's format and items resulted from multiple sources: (a) the review of the objectives and lesson plans of the Michigan Model for Comprehensive Health Education (Department of Education, 1988; Vogel, 1987), (b) the investigation of previously

developed health risk appraisals and health behavior questionnaires as previously noted, and (c) consultation with health professionals, educators, and evaluators.

The Michigan Model for Comprehensive Health Education

This Model is viewed as the most progressive health education program in the United States (Jubb, personal communication, January, 1989). It is a developmentally based health curriculum for grades K through 12 which took 10 years to develop and utilized the expertise of many individuals and professional groups related to health, education, fire, and police. The objectives, lesson plans and associated materials for grades K through 6 have been developed and are at various stages of implementation in 75% of Michigan school districts (Jubb, personal communication, January, 1989). The objectives, lesson plans and associated materials for grades 7 and 8 became available late in Spring 1989 so that implementation can occur during the 1989-1990 academic year. Those for the higher grades will be forthcoming. Evaluation of the impact of the Model will begin in the 1989-1990 academic year. Measures of knowledge, attitudes, and behaviors for grades K through 6 are in the process of being developed (Vogel, personal communication, January, 1989).

Consultation from Health Professionals, Educators, and Evaluators

Based upon the review of items included in other health risk appraisals and health behavior questionnaires for children, adolescents, and adults, and the review of the objectives and lesson plans of the Michigan Model for Comprehensive Health Education, a preliminary draft of items for the PHS was developed by the investigator. Content validity of the items selected, item clarity,

and appropriateness of survey techniques were confirmed by individuals with expertise in health, education and evaluation in the Greater Lansing Area. Their positions and organizational affiliation follow: (a) Director of Health Education, Ingham County Health Department, (b) 8th grade English educator, East Lansing Public Schools, (c) Program Coordinator of Health, Safety and Youth Services, American Red Cross, Lansing, (d) Nutritionist, College of Nursing, Michigan State University, (e) Professor, Measurement and Evaluation, College of Education, Michigan State University, (f) Supervisor, Sleep Disorder Program, Ingham Medical Center, Lansing, (g) President, Michigan Public Health Association, (h) Project Officer for the Michigan Model of Comprehensive Health Education, Michigan Department of Public Health, (i) Chief Health Surveilance Section, Michigan Department of Public Health, and (j) Project Director, Measurement and Evaluation, Michigan Model for Comprehensive Health Education.

The initial Health Practices Survey (HPS) was composed of approximately 100 items grouped into 10 focal areas, the nine areas identified by Bruhn & Parcel (1982a) and a tenth area derived from the investigator's review. These areas were: (a) Food Related Practices, (b) Dental Practices, (c) Sleep and Rest Practices, (d) Exercise and Fitness Practices, (e) Recreational Practices, (f) Automobile and Pedestrian Practices, (g) Household and Related Practices, (h) Stress Related Practices, (i) Substance Use Practices, and (j) Personal Care Practices. Normative statements based upon a standard baseline recommendation in the health literature or by the consultants were used. The majority of the statements were stated

positively; some negative statements were used to avoid a response set. Since the respondent would be asked to describe how often each health practice was performed, a variety of response categories were initially considered, e.g., using percent of time, using examples for comparison, or categories of almost always, frequently, sometimes, and never. A Likert scale was selected: "Never", "Rarely", "Sometimes", "Usually", and "Always" with "Never = 1" and "Always = 5". This approach was consistent with other health behavior questionnaires.

Based upon the reviews and comments of the consultants and the members of the investigator's doctoral committee, several items were both added and omitted and minor language changes were implemented. The resulting HPS was comprised of 128 items.

Pilot Testing

In order to assure that the items were clearly written for the young adolescent and to obtain initial reliability and validity measures on the HPS, the investigator contacted the Girl Scouts, Lansing, Michigan (Harte, personal communication, February, 1989). While this organization indicated that they had several junior girl scout troops composed of 12 through 15 year olds, they were reluctant to release the names and phone numbers of the troop leaders until their staff had reviewed the HPS as well as the revised Self-Care Inventory (SCI). The investigator decided that the latter also needed to be reviewed for clarity by several girl scouts in this age range.

After the staff reviewed the HPS and SCI, the investigator received the names and telephone numbers of six troops in the Greater

Lansing Area which were outside the specified geographic area used in the sampling of churches. Each leader was contacted and information about the intent and content of the HPS, and the previous review by the staff of Girl Scouts, Lansing was provided by the investigator. All leaders agreed to have the scouts in their troops complete the HPS. The investigator requested that the largest troop of ten scouts complete both the HPS and SCI; the leader and scouts agreed.

The investigator met with each troop and their leaders at their regularly scheduled meeting times. The meetings were conducted during March and April, 1989 and each was approximately two hours in length. The seven scouts in the first troop completing the HPS were encouraged to ask questions and make comments so that greater item clarity could be obtained. Based upon their input, additional minor changes in the phrasing of items and a few word substitutions were made. The revised HPS was then completed by 29 girl scouts between 13 and 16 years of age representing five different troops.

Data from the 29 completed HPS questionnaires were entered by a computer consultant and analysis was conducted using SPSS-X via the Michigan State University Computer Laboratory. Item analysis and reliability analysis utilizing the covariance matrix were performed. Cronbach's alpha was used to assess the internal consistency of each of the ten health practice areas or subscales. The results were reviewed by two members of the investigator's doctoral committee, the consultant and the investigator.

According to Nunnally (1978), a reliability standard (alpha coefficient) of .70 for new scales is acceptable. Four of the 10 subscales in the HPS met this standard: Food Related Practices (.83),

Stress Reduction Practices (.78), Household and Related Practices (.74), and Sleep Practices (.72). The alpha coefficients of the other subscales follow in descending order: Exercise and Fitness Practices subscale (.60), Dental Practices (.50), Recreational Practices (.46), Personal Care Practices (.38), Substance Use Practices (.20), and Automotive and Pedestrian Practices (-.29).

Upon review of the alpha coefficients and item analysis, the following changes in the HPS were made. It was noted that one item was repeated in the Food Related Practices Subscale, therefore it was deleted. Two items were reworded in the Sleep and Rest Practices Subscale while three additional items were added to the Exercise and Fitness Practices Subscale to enhance its alpha coefficient of .60 to the .70 minimum. One item was deleted from the Household and Related Practices Subscale, and two items were deleted from the Stress Reduction Practices Subscale. No changes were made in the remaining subscales. Since the pilot testing was restricted to young adolescent girls in primarily rural or small town settings, the introduction of adults and young male adolescents could alter the subscales with alpha coefficients of .50 and less. It was speculated that the poorest subscale performers, Substance Use Practices (.20) and Automotive and Pedestrian Practices (-.29) might need to be assessed for separate young adolescent and adult subscales. This review resulted in a 127 item revised HPS (Appendix H), which was used in this investigation. The reliability coefficients resulting from this study are discussed in "Data Analysis Procedures" and are presented in Table 3.

The General Functioning Subscale of the McMaster Family Assessment Device (FAD-7)

The McMaster Family Assessment Device (FAD) is a self-report 60 item measure of family functioning, i.e., how the family works together, and is based upon the McMaster Model of Family Functioning which utilizes systems theory (Epstein et al., 1983). The respondent is asked to select one of the following responses for each item: "strongly agree", "agree", "disagree", or "strongly disagree". The FAD is composed of seven subscales and has been recognized as a reliable and valid measure in assessing family functioning (Byles, Bryne, Boyle, & Offord, 1988; Epstein et al., 1983; Forman & Hagan, 1983; Kabacoff, Miller, Bishop, Epstein & Keitner, in press; McCubbin & Thompson, 1987; Miller, Epstein, Bishop & Keitner, 1985).

Byles et al. (1988) utilized the 12 item General Functioning Subscale of the FAD as a global measure of family functioning in a large random sample of 1,839 respondents. Positive features of the subscale which facilitated its use were: (a) its ease of administration and scoring, (b) its brevity, and (c) its high correlation with the 60 item FAD. Because it was highly correlated with the other six dimensions, it was considered to be a measure of the overall health/pathology of the family and therefore included as a self-report measure for parents in the Ontario Child Health Study. Byles et al. (1988) state that: (a) construct validity of the subscale was supported since it correlated as predicted with other family variables in the study, (b) reliability was consistent with previous findings, and (c) internal consistency was .86. The General

Functioning Subscale "...is a good measure for use in surveys where cost and ease of administration are important considerations, and where only scores of general family functioning rather than specific dimensions of family functioning are required" (Byles et al., 1988, p.103).

Kabacoff et al. (in press) indicate further support for the use of the General Subscale of the FAD as a global measure of family functioning. Their investigation of the correlation of this subscale and the other six subscales revealed that it was highly correlated with the first principal component of the other 48 items for nonclinical, psychiatric, and medical samples, i.e., .85, .87, and .88 respectively.

Due to copyright restrictions on the use of the FAD, the investigator followed the guidelines provided by Epstein et al. (1983) and obtained the FAD packet from the Director, Brown University Family Research Program, Butler Hospital, Providence, RI. The packet included the measurement instrument and scoring format (Epstein, Baldwin, & Bishop, 1982), and articles describing the FAD's psychometric properties. A review of the instrument revealed the 12 items of the General Functioning Subscale, (Appendix I), six items (2, 4, 6, 8, 10, and 12) describe healthy functioning and six items (1, 3, 5, 7, 9, and 11) describe unhealthy functioning. To score the Subscale, the response selected by the respondent for each of the items is coded as follows: Strongly Agree = 1, Agree = 2, Disagree = 3, and Strongly Disagree = 4. The score for each item describing unhealthy functioning is transformed by subtracting it from 5. Therefore one represents a healthy response and four represents an

unhealthy response. The resulting 12 numerical responses are then averaged to provide a subscale score with a possible range from 1.00 (healthy) to 4.00 (unhealthy) (Epstein et al., 1982). According to Miller et al. (1985) a mean of greater than 2.0 endorses an unhealthy direction suggesting that the family is having difficulties. In addition, they note that, based upon clinical experience, scores in the unhealthy range may occur in 19 to 36% of non-clinical or supposedly healthy families.

Demographic Information

The demographic measures (Appendix J) selected were the result of the investigator's review of items in other health behavior questionnaires, THE MICHIGAN EARLY ADOLESCENT SURVEY (Keith & Hoopfer, 1987), other dissertations, and the literature review related to health behavior and family research. They were reviewed for clarity and appropriateness by the members of the investigator's doctoral committee; their operational definitions are provided on pp.18-22.

Scoring Procedures

According to the conceptual framework adopted for this study, the variables of interest include: (a) personal characteristics, i.e., age, gender, religiosity, ethnicity, marital status, educational level, occupation, employment status, health status, height and weight, perceived family functioning, health behavior (psychosocial and behavioral), intrinsic motivation, (b) the family realm, i.e., family type and family income, and (c) family characteristics, i.e., family functioning, family intrinsic

motivation, family health behavior (psychosocial and behavioral), and family health status. The measurement of each of these variables was guided by their corresponding operational definitions, pp. 20-23, and the scoring procedures described for the measurement instruments, pp. 62-79. Each of the personal characteristics and the family realm variables of family type and family income were coded for data entry by the investigator. These codes were then utilized for computer entry of the data as well as the statistical analyses. The latter included the formulation of measures for each of the family characteristic variables.

The Statistical Methods

The statistical methods utilized in the analysis of the study data are reviewed in this section. Table 2 presents an overview of the hypotheses tested, the conceptual approach selected for their analysis, the data used, and the statistical approach. All statistical analyses were conducted by SPSS-X through the Computer Laboratory at Michigan State University, East Lansing, MI.

Descriptive statistics, i.e., measures of central tendency and measures of variability, were used to characterize the sample where applicable. Cronbach's alpha, a summary measure of reliability, was utilized to indicate the degree to which each of the underlying items in a scale or subscale consistently measured the same underlying concept. According to Nunnally (1978, p. 207) "the precision with which the reliability is estimated for any test is a direct function of the precision with which the average correlation of items in a test estimates the average correlation of all items in the domain." A satisfactory coefficient alpha depends upon how a measure is used;

Table 2
Summary of Statistical Procedures.

Purposes of Analysis	Conceptual Approach Used to Determine Family Characteristics	Data Used in Analysis	Statistical Approach
Test of hypotheses #1 - #4	Discrepancy Score Model	Individual & triad data for both models on: 1. Health status 2. Intrinsic Motivation 3. Health behavior (psychosocial and behavioral) 3. Family functioning 4. Health status	Family Discrepancy Mean Score and t-test.
	Conjunctive Model		Within-family factor from ANOVA with repeated measures & F-test.
Test of hypotheses #5 -#13		Individual data on 1. - 4. above	Family means, Pearson correlations on pairs of family characteristics & frequencies of correlations by family type.
Test of hypotheses #14 - #17		Same as for hypotheses #1 - #4	ANOVA/F-test.
Test of hypothesis #18		Same as for hypotheses #1 -#4 plus family income & family type	Descriptive Pearson correlations between family means on family characteristics.

in basic research .80 is adequate while .70 is reasonable in the early stages of instrument development (Nunnally, 1978, p.245).

The Pearson product moment correlation coefficient (Pearson coefficient) was utilized to reflect the magnitude and direction of the linear relationship between two variables or between two observations of the same variable. Variance in the sample can be a major influence of r; "the greater the variability among the observations, the greater the value of r" (Glass & Hopkins, 1984, p. 92).

The Pearson coefficient was also used to investigate the psychometric property of reliability of scales. Items which were correlated most highly with the total score were retained. Items below .30 were excluded (Nunnally, 1978). When a concept has multiple dimensions with multiple indicators, items with low correlations may occur due to missing key conceptual aspects (Green & Lewis, 1986; Nunnally, 1978).

Analysis of variance (ANOVA), an inferential statistical technique, was used to determine whether the difference among two or more means was greater than that expected from sampling error (chance). The statistical significance of the F-test was used to determine whether a significant difference existed between the means. Analysis of variance with repeated measures was utilized to investigate family congruency (Ball et al., 1983). When two or more family members provide data on a variable of interest, e.g., health behavior, the family has been "repeatedly measured". This repeated measure can be referred to as a within-family factor. According to Ball et al. (1983) the main advantage of the within-family factor is

that it increases the power for the test of family-member main effect, i.e., the F test is more powerful. This occurs since the error, with one observation per cell, is only measurement error and not the differences between subjects in the cell. Assuming that the measurement error is small and individual differences are quite large, the denominator of the family-members' F test should be much smaller. A small denominator suggests "a larger value of F and a greater probability of a significant result" (Ball et al., 1983, p. 889).

The t-test was utilized to draw inferences about the central tendency of populations. Specifically the t-test was used to examine two alternative hypotheses: (a) that the difference between the means of two populations or samples was equal to zero, and (b) that they were different from zero.

Data Analysis Procedures

Prior to any attempt to analyze the data, the accuracy of the scoring formats, i.e., reverse coding of items, and the accuracy of the data as entered were confirmed. The former occurred by reviewing the individual measurement guidelines and the commands on the data printout. The accuracy of the entered data was confirmed by the investigator and a second reviewer who together compared the original data set for each individual with a printout of the individual's entered data. Following the correction of the errors, descriptive statistics were obtained.

Cross tabulations in conjunction with reliability analyses were then conducted on the selected measurement instruments, i.e., the SCI, the HPBQ-Part 2, the FAD-7, the HPS and its subscales, and the

HSDI. Cross tabulations of each item by family type and family subsample, the adolescents, the mothers, and the fathers, were conducted. Reliability analyses were also completed separately for the subsamples. They included Cronbach's alpha coefficient (alpha coefficient), the mean and standard deviation for each item, and the item-total statistics for subscales, i.e., the scale mean, variance, and alpha if item deleted, the corrected item-total correlation, and the squared multiple correlation.

The results from the SCI, the HPBQ-Part 2, the FAD-7, the HPS and its subscales, and the HSDI were reviewed by the investigator and the statistical consultant. The review resulted in the deletion of several items with inadequate variance and low item-total correlation. The initial alpha coefficients for each of the subsamples on the SCI were above .80; therefore, no items were deleted. The initial alpha coefficients for the HPBQ-Part 2 were .68 for the fathers, .73 for the mothers, and .68 for the adolescents. The review of the item analysis resulted in the deletion of three items: #12, "Avoid contact with doctors when feeling okay", #23, "Don't smoke", and #30, "Ignore health advice from friends, neighbors, and relatives". Their deletion resulted in the enhancement of the alpha coefficients to .70 for the three subsamples.

The initial alpha coefficients for the total HPS were also above .80, but those accompanying some of the subscales were still below .60, e.g., Dental Practices, Automotive and Pedestrian Practices, Substance Use Practices, and Personal Care Practices. The review of the item analysis of all subscales resulted in the deletion of

several items to enhance the alpha coefficients of the subscales: (a) Item #36, "I use a soft toothbrush", was deleted from the Dental Practices Subscale; (b) items #49, "I walk up stairs rather than use the elevator" and #50, "I maintain good posture when sitting or standing", were deleted from the Exercise and Fitness Subscale, (c) items #54, "I operate a three wheeler, all terrain vehicle (ATV), snowmobile, or motorboat", #55, "I ride with drivers of all terrain vehicles (ATV), snowmobiles or motorboats who have been using drugs or alcohol", and #58, "I walk or jog on a road or street with the flow of traffic", were deleted from the Recreational Practices Subscale, (d) item #91, "I am able to get to and handle guns in my home" was deleted from the Household Practices Subscale, and (e) item #96, "I eat more food when I feel anxious or tense" was deleted from the Stress Reduction Practices Subscale. The other subscales remained intact as originally developed.

The alpha coefficients for the HSDI for each of the subsamples were less than those reported in other investigations. The scoring mechanism was reviewed with Cox (personal communication, October 27, 1989); it was consistent with the scoring approach used prior to the reliability analysis for this study. An enhancement of the coefficients resulted when two items were deleted: #10, "I do things to help my health even though a doctor or nurse has not suggested these things to me" and #17, "I know what I'm doing when it comes to taking care of my health". Since sample homogeneity was revealed through the descriptive statistics of the respondents' individual characteristics, the lowered reliabilities of the subsamples on the HSDI could also be reflecting sample homogeneity. The FAD-7 was not

altered due to the high alpha coefficients across the subsamples. The resulting reliabilities for these multiple item measures by the subsamples are presented in Table 3.

Once the reliabilities of the measurement instruments were secured, a score or simple mean for each respondent on each measurement instrument was obtained according to the authors' instructions. These results and the one item score for personal health status for each respondent were utilized in the testing of the hypotheses. The first four hypotheses explored the presence of family characteristics related to health behavior by investigating the degree of congruency on the data reported by multiple family members. The hypothesized family characteristics were: family functioning, family intrinsic motivation, family health behavior, i. e., family psychosocial health behavior and family behavioral health behavior, and family health status. Two conceptual approaches, the Discrepancy Score Model and the Conjunctive Model (Klein, 1984) were selected as being most appropriate for their investigation. According to Klein (1984), Fisher et al. (1985) and Gillis (1983), different statistical methods can be used with each of these models. The statistical methods were determined by the investigator's review of the family and health behavior literature, consultation with members of the investigator's doctoral committee, and the recommendations of the statistical consultant.

It must be acknowledged that confusion can occur when evaluating the results; this is due to the conceptual and statistical

Table 3
Reliability Analysis* of the HSDI, the FAD-7, the SCI, the HPBQ-Part 2 and the HPS and its Subscales by Subsamples.

Measures	Subsamples		
	Fathers	Mothers	Adolescents
HSDI	.66	.62	.72
FAD-7	.88	.88	.90
SCI	.92	.94	.92
HPBQ-Part 2	.71	.77	.70
HPS	.90	.91	.91
Automotive & Pedestrian Practices	.71	.60	.46
Dental Practices	.44	.52	.65
Exercise and Fitness Practices	.78	.83	.71
Food Related Practices	.80	.78	.74
Household & Related Practices	.63	.77	.79
Personal Care Practices	.41	.44	.50
Recreational Practices	.64	.74	.65
Sleep & Rest Practices	.59	.71	.65
Stress Reduction Practices	.75	.79	.69
Substance Use Practices	.37	.50	.38

*Cronbach's Alpha Coefficient

approaches. Although the conceptual hypotheses and the statistical null hypotheses are consistent in that they both indicate the existence of congruency, rejection of the statistical null hypotheses would imply that congruency does not exist. In this analysis then, non-significant results are desired and would support the conceptual hypotheses of congruency. The conceptual formula utilized for the Discrepancy Score Model (Klein, 1984) was:

$$\sum_{hij} \left| (\bar{x}1 - \bar{x}2) \right|.$$

This formula creates a family measure (score); an example for a family HSDI score with three family members follows:

|AMNHSDI-FAMNHSDI| + |FMNHSDI-FAMNHSDI| + |MMNHSDI-FAMNHSDI| = FADISMNHSDI.

In this equation AMNHSDI = the adolescent's mean score on the HSDI,

FMNHSDI = the father's mean score on the HSDI,

MMNHSDI = the mother's mean score on the HSDI.

FAMNHSDI = the family measure mean score on the HSDI.

FADISMNHSDI = the family discrepancy mean score on the HSDI

This same equation was utilized in creating the other family measures, i.e., family functioning, family health behavior (psychosocial and behavioral), and family health status . The creation of the family measures was accomplished through the program SPSS-X and the evaluation of the presence of a family characteristic was determined by a hand computed t via the t-test for each potential family characteristic.

If congruency existed, the t scores were not significant, i.e., they were near zero and the t was less than 3.46 (p=.01) for dual parent families and less than 4.32 (p=.01) for single parent families, and the statistical null hypothesis was retained. However, if congruency did not exist, the t scores were significant, i.e.,

they were distant from zero and the t was greater than 3.46 (p=.01) for dual parent families and greater than 4.32 (p=.01) for single parent families, and the statistical null hypothesis was rejected.

The analysis of variance with repeated measures was selected as the statistical method to investigate the presence of a family characteristic as conceptualized in the Conjunctive Model (Klein, 1984). Unlike the statistical method for the Discrepancy Score Model, this method does not yield a derived family score, but does reveal the presence of a family characteristic through the F statistic. The F statistic was determined through the use of SPSS-X and the following formula:

$$Xij = u + aj + Eij \text{ (Glass \& Hopkins, 1984)}$$

In this formula Xij represents the simple mean scores of the adolescent, mother and father or only the adolescent and mother, the aj represents the with-in family effect and Eij represents the error. J is the number of individuals in the family and i is the observation or family. This same equation was utilized in creating the other family characteristics, i.e., family functioning, family health behavior (psychosocial and behavioral), and family health status,.

If congruency existed, the F statistic was not significant, i.e., the F value was less than 3.15 (p=.05) for the dual parent family and less than 4.75 (p=.05) for the single parent family, and the statistical null hypothesis was retained. If congruency did not exist, the F statistic was significant, i.e., the F value was greater than 3.15 (p=.05) for the dual parent family and greater than 4.75

(p=.05) for the single parent family, and the statistical null hypothesis was rejected.

Once these statistical analyses were completed and the results indicated support for the proposed hypotheses, i.e., that congruence was present, further investigation of these family characteristics was conducted. This included the investigation of hypotheses focusing on the relationships between these family characteristics and within the individual family. Pearson product moment correlations were calculated for pairs of the family measures (mean scores). Therefore, for every proposed relationship between two family characteristics there were 73 correlations, 60 correlations for the dual parent families and 13 correlations for the single parent families. The frequencies of these correlations were then assessed by the following decision rule. If more than 50% of the families exceeded a Pearson coefficient of .40, the hypothesis about the relationship was supported.

The final series of statistical analyses focused on relationships between family characteristics and the family realm variables of family type, i. e., dual and single parent families, and family income. The Pearson product moment correlations were based upon the families' means of the family characteristics. If a Pearson of .30 was exceeded, the relationship was supported.

CHAPTER IV

RESULTS OF DATA ANALYSIS

This chapter includes the description of the study sample, a summary of the major characteristics of the sample, the testing of the hypotheses, and a summary of the hypotheses testing. The description of the study sample includes the demographic and personal characteristics, i.e., the respondents' reports of marital status, family composition, family income, age, ethnicity, educational attainment, occupation, religiosity, perceived health status, and long term health impairments or health problems.

Description of the Study Sample

The sample was composed of 60 two parent families and 13 single parent families (Table 4). Data were collected from three members of the two parent family, the father, the mother and the adolescent, and from two members in the single parent family, the mother and the adolescent. The adolescent in both families was the oldest child between the ages of 13 and 15. Therefore, 60 fathers, 60 mothers and 60 adolescents in dual parent families, and 13 mothers and 13 adolescents in single parent families participated. The sample total was 206 family members representing 73 families.

Mothers in dual parent families reported that their families were

Table 4
Marital Status of Parents in Dual and Single Parent Families.

Marital Status	Dual Parent				Single Parent	
	Fa.		Mo.		Mo.	
	n	%	n	%	n	%
Married	60	100.0	60	100.0	-	-
Divorced	-	-	-	-	11	84.6
Separated	-	-	-	-	2	15.4
Total	60	100.0	60	100.0	13	100.0

composed of three to seven family members. The majority of these families, 51.7% (n=31), had four members, the parents and two children. Mothers in the single parent families reported that their families were composed of two to five family members. Table 5 reflects the number of family members in both family types; the distribution of members is the result of the investigator's review of uncoded data.

Table 5
Number of Family Members as Reported by Mothers in Dual and Single Parent Families.

Number of Family Members	Dual Parent		Single Parent	
	n	%	n	%
Two	-	-	3	23.0
Three	5	8.4	4	31.0
Four	31	51.7	2	15.0
Five	17	28.3	4	31.0
Six	5	8.3	-	-
Seven	2	3.3	-	-
Total	60	100.0	13	100.0

Family income was determined by the highest response category selected by an adult in the dual parent family and by the mother in the single parent family. Twenty income categories beginning with

"Less than $10,000", increasing at increments of $5,000, and concluding with "More than $100,000" were used. Variance of family income was most noticeable in the dual parent families, i.e., from $15,000 to more than $100,000. Income categories of the single parent families clustered from "Less than $10,000" to $30,001 - $35,000 (Table 6). In the dual parent families, 24% (n=14) of the families indicated their family income was between $15,000 and $40,000, 36% (n=21) indicated their family income was between $40,001 and $55,000, and 40% (n=24) indicated their family income was between $55,001 to more than $100,000. In the single parent families, 46% (n=6) indicated a family income of between $15,000 and $25,000.

Age was calculated by the investigator from the respondent's birthdate and viewed within the context of categories of years. The majority of the fathers, 78% (n=47), were between the ages of 41 and 50; the majority of the mothers in the dual parent families, 73% (n=44), were between the ages of 36 and 45. The majority of the mothers in the single parent families, 69% (n=9), were between 31 and 40. All adolescents were between 13 and 15 years of age. The adolescents in the dual parent families were overall slightly older, age 14, than those in the single parent families, age 13 (Table 7).

Although a sample diverse in ethnicity and educational attainment had been sought, the repondents were predominantly "White not Hispanic" and had either attended college or completed four years of college (Tables 8 & 9). Each of the other ethnic groups, "Black not Hispanic", "Hispanic", "Asian", and "American Indian", was represented by at least two people (Table 8). A majority of the fathers (66%, n=33) and 42% (n=22) of the mothers in the dual parent families, and

Table 6
Family Income by Dual and Single Parent Families.

Income	Value	Dual Parent		Single Parent	
		n	%	n	%
Less than $10,000	1	-	-	1	7.7
$10,001 to $15,000	2	-	-	2	15.4
$15,001 to $20,000	3	2	3.4	3	23.1
$20,001 to $25,000	4	3	5.1	3	23.1
$25,001 to $30,000	5	1	1.7	2	15.4
$30,001 to $35,000	6	3	5.1	1	7.7
$35,001 to $40,000	7	5	8.5	-	-
$40,001 to $45,000	8	7	11.9	-	-
$45,001 to $50,000	9	7	11.9	-	-
$50,001 to $55,000	10	7	11.9	1	7.7
$55,001 to $60,000	11	4	6.8	-	-
$60,001 to $65,000	12	5	8.5	-	-
$65,001 to $70,000	13	3	5.1	-	-
$70,001 to $75,000	14	3	5.1	-	-
$75,001 to $80,000	15	1	1.7	-	-
$80,001 to $85,000	16	3	5.1	-	-
$85,001 to $90,000	17	-	-	-	-
$90,001 to $95,000	18	-	-	-	-
$95,001 to $100,000	19	2	3.4	-	-
More than $100,000	20	3	5.1	-	-
Missing Data	21	1	7.7	-	-
Total		60	100.0	13	100.0
Mean Value		10.356		4.000	
Median Value		10.000		4.000	
Mode Value		8.000		3.000	
Standard Deviation Value		4.246		2.273	

58% (n=7) of the mothers in the single parent families had completed at least four years of college with the majority of these completing five or more years of college (Table 9).

A review of the occupational categories by fathers and mothers revealed that the majority of both hold professional or managerial positions, i.e., 76% (n=44) of the fathers, 43% (n=26) of the mothers in dual parent families, and 69% (n=9) of the mothers in the single parent families (Table 10). Only ten (16.7%) of the mothers in the

Table 7
Age in Years Reported by Respondents in Dual and Single Parent Families.

Age in Years	Value	Dual Parent		Single Parent	
		n	%	n	%
Fathers					
36–40	2	6	10.0	–	–
41–45	3	24	40.0	–	–
46–50	4	23	38.3	–	–
51–55	5	5	8.3	–	–
Missing data	6	2	3.3	–	–
Total		60	100.0		
Mean Value		3.550		–	
Median Value		3.500		–	
Mode Value		3.000		–	
Standard Deviation Value		.910		–	
Mothers					
25–30	1	2	3.3	–	–
31–35	2	9	15.0	4	30.8
36–40	3	26	43.3	5	38.5
41–45	4	18	30.0	3	23.1
46–50	5	4	6.7	1	7.7
Missing data	6	1	1.7	–	–
Total		60	100.0	13	100.0
Mean Value		3.267		3.077	
Median Value		3.000		3.000	
Mode Value		3.000		3.000	
Standard Deviation Value		.972		.954	
Adolescents					
13	13	22	36.6	7	53.8
14	14	24	40.0	4	30.8
15	15	14	23.3	2	15.4
Total		60	100.0	13	100.0
Mean Value		13.850		13.615	
Median Value		14.000		13.000	
Mode Value		14.000		13.000	
Standard Deviation Value		.799		.768	

Table 8
Ethnicity of Respondents in Dual and Single Parent Families.

Ethnicity	Dual Parent						Single Parent			
	Fa.		Mo.		Ad.		Mo.		Ad.	
	n	%	n	%	n	%	n	%	n	%
White not Hispanic	56	93.3	57	95.0	51	86.4	12	92.3	9	75.0
Black not Hispanic	2	3.3	1	1.7	1	1.7	1	7.7	1	8.3
Hispanic	1	1.7	1	1.7	1	1.7	-	-	1	8.3
Asian	1	1.7	-	-	1	1.7	-	-	-	-
American Indian	-	-	1	1.7	2	3.4	-	-	1	8.3
Other	-	-	-	-	3	5.1	-	-	-	-
Missing Data	-	-	-	-	1	1.7	-	-	1	8.3
Total	60	100.0	60	100.0	60	100.7	13	100.0	13	100.3

dual parent families indicated they were full time homemakers.

Although families representing diverse religious preference, e.g., Catholicism, Protestantism, and Judaism, were sought, the sample was primarily Protestant, i. e., 75% (n=45) of the fathers, 82% (n=49) of the mothers, and 61.7% (n=37) of the adolescents in the dual parent families, and 69.2% (n=9) of the mothers and 69% of the adolescents (n=9) in the single parent families (Table 11). Two other categories were also selected by respondents: Catholic and Other.

A review of the frequency of attendance of the repondents at religious services or functions during the five weeks prior to completing the questionnaire revealed that in general these families were active church participants. Approximately two-thirds of fathers, mothers, and adolescents had attended at least three church related activities (Table 12). Approximately 25.7% (n=16) of these fathers, 36.75% (n=22) of these mothers, and 26.7% (n=16) of these adolescents in the dual parent families, and 38.5% (n=5) of these

Table 9
Years of Education As Reported by Parents in Dual and Single Parent Families.

Education	Value	Dual Parent				Single Parent	
		Fa.		Mo.		Mo.	
		n	%	n	%	n	%
1-3 years of high school	2	1	2.0	-	-	-	-
Completed 4 years of high school (diploma or G.E.D.)	3	4	8.0	8	15.4	4	33.3
Less than 4 years of college	4	12	24.0	22	42.3	1	8.3
4 years of college	5	11	22.0	6	11.5	4	33.3
5 or more years of college	6	22	44.0	16	30.8	3	25.0
Missing Data	7	10	16.6	8	13.3	1	8.3
Total		60	100.0	60	100.0	13	100.0
Mean Value		3.980		3.577		3.500	
Median Value		4.000		3.000		4.000	
Mode Value		5.000		3.000		2.000	
Standard Deviation Value		1.097		1.091		1.232	

mothers in the single parent families participated in more than five church related activities.

In general the respondents in this sample viewed themselves as being in good health (Table 13). The categories of "Excellent", "Very Good" and "Good" were selected by 96% (n=56) of the fathers, 92% (n=55) of the mothers, and 92% (n=55) of the adolescents in the dual dual parent families, and 100% (n=13) of the mothers and adolescents in the single parent families. However 41 respondents, 13 fathers, 13

mothers, and nine adolescents in the dual families, and five mothers and one adolescent in the single parent families, collectively indicated they had 49 long term impairments or health problems (Table 14). These were categorized into frequently used disease and disorder groupings. The top four categories were: neurological (n=16), endocrine/nutritional/metabolic (n=10), respiratory (n=8), and circulatory (n=6).

Table 10
Current Occupation of Respondents in Dual and Single Parent Families.

Current Occupation	Dual Parent						Single Parent			
	Fa.		Mo.		Ad.		Mo.		Ad.	
	n	%	n	%	n	%	n	%	n	%
Professional	28	48.3	22	36.7	-	-	6	46.2	-	-
Management	16	27.6	4	6.7	-	-	3	23.1	-	-
Proprietor (small business)	3	5.2	7	11.7	-	-	-	-	-	-
Clerical worker	-	-	13	21.7	-	-	3	23.1	-	-
Sales worker	1	1.7	1	1.7	-	-	-	-	-	-
Skilled craftsman or foreman	5	8.6	-	-	-	-	-	-	-	-
Operative unskilled laborer	1	1.7	-	-	-	-	-	-	-	-
Homemaker	-	-	10	16.7	-	-	-	-	-	-
Student	2	3.4	1	1.7	60	100.0	-	-	13	100.0
Other	2	3.4	2	3.3	-	-	1	7.7	-	-
Missing Data	2	3.4	-	-	-	-	-	-	-	-
Total	60	100.0	60	100.0	60	100.0	13	100.0	13	100.0

Table 11
Religious Preference of Respondents in Dual and Single Parent Families.

Religious Preference	Dual Parent						Single Parent			
	Fa.		Mo.		Ad.		Mo.		Ad.	
	n	%	n	%	n	%	n	%	n	%
Catholic	6	10.0	5	8.3	6	10.0	1	7.7	-	-
Protestant	45	75.0	49	81.7	37	61.7	9	69.2	9	69.2
Other	9	15.0	6	10.0	17	28.3	2	15.4	3	23.0
Missing Data	-	-	-	-	-	-	1	7.7	1	7.6
Total	60	100.0	60	100.0	60	100.0	13	100.0	13	100.0

Table 12
Frequency of Attendance at Religious Services or Functions During Past Five Weeks by Respondents in Dual and Single Parent Families.

Frequency of Attendance	Value	Dual Parent						Single Parent			
		Fa.		Mo.		Ad.		Mo.		Ad.	
		n	%	n	%	n	%	n	%	n	%
None	0	9	15.0	8	13.3	9	15.0	2	15.4	3	23.1
Once	1	3	5.0	2	3.3	3	5.0	-	-	-	-
Twice	2	5	8.3	5	8.3	5	8.3	-	-	3	23.1
Three times	3	11	18.3	7	11.7	11	18.3	-	-	-	-
Four times	4	8	13.3	8	13.3	8	13.3	4	30.8	1	7.7
Five times	5	8	13.3	8	13.3	8	13.3	2	15.4	4	30.8
More than five times	6	16	25.7	22	36.7	16	26.7	5	38.5	2	15.4
Total		60	100.0	60	100.0	60	100.0	13	100.0	13	100.0
Mean Value		2.567		4.950		3.567		5.308		3.231	
Median Value		3.000		5.500		4.000		6.000		4.000	
Mode Value		5.000		7.000		6.000		7.000		5.000	
Standard Deviation Value		2.100		2.135		2.110		2.097		2.315	

Table 13
Perceived Overall Health Status of Respondents in Dual and Single Parent Families.

Perceived Health Status	Value	Dual Parent						Single Parent			
		Fa.		Mo.		Ad.		Mo.		Ad.	
		n	%	n	%	n	%	n	%	n	%
Excellent	1	13	22.4	11	18.3	11	18.3	1	8.3	1	8.3
Very Good	2	24	41.4	24	40.0	24	40.0	7	53.8	7	53.8
Good	3	19	32.8	20	33.3	20	33.3	5	38.5	5	38.8
Fair	4	2	3.4	4	6.7	4	6.7	-	-	-	-
Poor	5	-	-	1	1.7	1	1.7	-	-	-	-
Missing Data	6	2	3.4	-	-	-	-	-	-	-	-
Total		60	100.0	60	100.0	60	100.0	13	100.0	13	100.0
Mean Value		2.172		2.033		2.333		2.000		2.308	
Median Value		2.000		2.000		2.000		2.000		2.000	
Mode Value		2.000		2.000		2.000		1.000		2.000	
Standard Deviation Value		.819		.920		.914		1.000		.630	

A comparison of the reported heights and weights of fathers and mothers to the suggested weights for given heights (Stanhope & Lancaster, 1984) revealed that the mothers in both groups, dual and single parent, were more inclined to be in the appropriate weight range for their height than the fathers in the dual parent families (Table 15). There were 46.6% (n=28) of the mothers in the dual parent families, 38.5% (n=5) of the mothers in single parent families, and 30.1% (n=19) fathers within the suggested weight range for their respective heights. Of those not within the suggested range, 63.2% (n=38) of the fathers, 61.5% (n=3) of the mothers in the single parent families, and 48.3% (n=29) of the mothers in the dual parent families exceeded the suggested weight range. Only three parents, one father and two mothers in the dual parent families, were below the suggested weights for their heights.

Table 14
Long Term Impairment or Health Problem as Reported by 41* Respondents in Dual and Single Parent Families.

Long-term Impairment or Health Problem	Dual Parent						Single Parent				
	Fa. n(13)	%	Mo. n(13)	%	Ad. n(9)	%	Mo. n(5)	%	Ad. n(1)	%	
											Total
Diseases or disorders of the neurological system	7	11.6	5	8.3	2	3.3	2	15.3	-	-	16
Endocrine, nutritional, and metabolic disorders	4	6.6	3	5.0	2	3.3	1	7.5	-	-	10
Diseases or disorders of the respiratory system	3	5.0	1	1.6	3	5.0	1	7.5	-	-	8
Diseases or disorders of the circulatory system	4	6.6	1	1.6	1	1.6	-	-	-	-	6
Diseases or disorders of the musculoskeletal system	1	1.6	3	5.0	-	-	1	7.5	-	-	5
Psychological disorders	-	-	1	1.6	-	-	-	-	1	7.5	2
Diseases of the skin	-	-	-	-	1	1.6	-	-	-	-	1
Diseases of the digestive tract	-	-	1	1.6	-	-	-	-	-	-	1
Total	19		15		9		5		1		49

*The total number of respondents who identified from one to four health conditions, therefore the total number of conditions reflects all the conditions identified by these respondents.

Table 15
Comparison of Suggested Heights and Weights to Reported Heights and Weights of Parents in Dual and Single Parent Families.

Suggested Heights and Weights*		Reported Body Weights					
Height Ft. In.	Weight Lbs.	Dual Parent			Single Parent		
		Yes	No		Yes	No	
			Above	Below		Above	Below
		n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Fathers		(n=60)					
5 1	109-138	-	1(1.7)	-	-	-	-
5 7	128-161	1(1.7)	-	-	-	-	-
5 8	132-166	2(3.3)	4(6.7)	-	-	-	-
5 9	136-170	1(1.7)	3(5.0)	-	-	-	-
5 10	140-174	6(10.0)	9(15.0)	-	-	-	-
5 11	144-179	2(3.3)	8(13.3)	-	-	-	-
6 0	148-184	3(5.0)	5(8.3)	-	-	-	-
6 1	152-189	4(6.7)	1(1.7)	-	-	-	-
6 2	156-194	-	4(6.7)	1(1.7)	-	-	-
6 3	160-199	-	2(3.3)	-	-	-	-
6 4	164-204	-	1(1.7)	-	-	-	-
6 6	172-214	-	1(1.7)	-	-	-	-
Total		19(30.1)	38(63.2)	1(1.7)	-	-	-
Missing Data=2(3.3%)							
Mothers		(n=60)			(n=13)		
5 0	96-125	-	1(1.7)	-	-	2(3.3)	-
5 1	99-128	-	-	1(1.7)	-	-	-
5 2	102-131	4(6.7)	3(5.0)	-	1(7.7)	1(7.7)	-
5 3	105-134	3(5.0)	5(8.3)	-	1(7.7)	1(7.7)	-
5 4	108-138	5(8.3)	3(5.0)	-	-	1(7.7)	-
5 5	111-142	4(6.7)	6(10.0)	-	2(15.4)	-	-
5 6	114-146	7(11.6)	2(3.3)	1(1.7)	-	2(15.4)	-
5 7	118-150	1(1.7)	5(8.3)	-	1(7.7)	1(7.7)	-
5 8	122-154	2(3.3)	4(6.7)	-	-	-	-
5 9	126-158	1(1.7)	-	-	-	-	-
5 11	134-168	1(1.7)	-	1(1.7)	-	-	-
Total		28(46.6)	29(48.3)	3(5.0)	5(38.5)	8(61.5)	-

*From the Department of Health, Education and Welfare Conference on Obesity, Washington, D.C., 1973 as cited by Stanhope & Lancaster (1984, p.470).

The 25% to the 75% range of the physical growth percentiles for height, weight, age, and gender published by Ross Laboratories (1982) was used to analyze the reported heights and weights of the 73 adolescents. Forty-four adolescents were males; 36 were from dual parent families and eight were from single parent families. Twenty-nine adolescents were females; 24 were from dual parent families and five were from single parent families. Data from two adolescents, one male and one female were not available. In general, the sample of adolescents reflects an appropriate distribution of height and weight by age and gender as might be anticipated (Tables 16 and 17). However, it must be noted that a disproportionate number of the 15 year old males in this sample are taller and heavier than that anticipated for 15 year olds in general.

Analysis revealed that 11 of the 16 thirteen year old males, and six of the 12 thirteen year old females were within their percentile range for height while the five remaining males and five remaining females were taller. Only one female 13 year old was below the 25% for height. This distribution was identical for their weights. Twelve of the 18 fourteen year old males and eight of the nine 14 year old females were within their percentile range for height while three males and one female were taller. Three males were below the 25% for height. Nine of the males and seven of the females were within their range for weight while seven males and one female weighed more and two males and one female weighed less. Two of the nine 15 year old males and five of the seven 15 year old females were within their percentile range for height while six males and two females were taller and only one male was below the 25% for height. Only one male was within the

percentile range for weight; the other eight exceeded the weight range. Six of the females were within their range while one also exceeded the weight range.

Table 16
Comparison of Suggested Heights and Weights by Age to the Heights, Weights and Ages Reported by Female Adolescents in Dual and Single Parent Families.

Female Adolescents (n=28)**	Suggested Body Heights and Weights by Age*																	
	13(n=12)						14(n=9)						15(n=7)					
	Ht. 5'-5'4"			WT. 88-114			Ht. 5'1"-5'5"			Wt. 98-124			Ht. 5'2"-5'6"			Wt. 104-138		
	Yes	No		Yes	No		Yes	No		Yes	No		Yes	No		Yes	No	
		A^	B@		A^	B@		A^	B@		A^	B@		A^	B@		A^	B@
Dual Parent Families (n=22)	5	3	1	5	3	1	6	2	-	6	1	1	4	2	-	5	1	-
Single Parent Families (n=6)	1	2	-	2	1	-	-	1	-	1	-	-	1	-	-	1	-	-
Total	6	5	1	7	4	1	6	3	-	7	1	1	5	2	-	6	1	-

*From Girls: 2 to 18 Years Physical Growth NCHS Percentiles, Ross Laboratories, 1982.
**Missing Data=1 in a dual parent family.
^=Above
@=Below

Table 17
Comparison of Suggested Body Heights and Weights by Age to the Heights, Weights and Ages Reported by Male Adolescents in Dual and Single Parent Families.

Male Adolescents (n=43)**	Suggested Body Heights and Weights by Age*																	
	13(n=16)						14(n=18)						15(n=9)					
	Ht. 5'-5'4"			Wt. 88-114			Ht. 5'2"-5'7"			Wt. 100-128			Ht. 5'5"-5'9"			Wt. 112-142		
	Yes	No		Yes	No		Yes	No		Yes	No		Yes	No		Yes	No	
		A^	B@		A^	B@		A^	B@		A^	B@		A^	B@		A^	B@
Dual Parent Families (n=36)	7	5	-	4	6	2	10	3	3	8	6	2	2	6	-	1	7	-
Single Parent Families (n=7)	4	-	-	2	1	1	2	-	-	1	1	-	-	1	-	-	1	-
Total	11	5	-	6	8	3	12	3	3	9	7	2	2	7	-	1	8	-

*From Boys: 2 to 18 Years Physical Growth NCHS Percentiles, Ross Laboratories, 1982.
**Missing Data=1 in single parent family.
^=Above
@=Below

Summary of Major Characteristics of the Sample

This sample of 206 respondents representing 73 families, 60 two parent families and 13 single parent families, was generally homogeneous. Respondents were predominantly white Protestants who actively participated in church related activities, and perceived themselves to be in good health although long term health conditions were present. The reported weights exceeded the suggested weight for height for approximately half of the respondents. The fathers tended to be between 40 and 50 years of age, the mothers in dual parent

families between 35 and 45, and the mothers in single parent families between 31 and 40. A very high proportion of the all adults had attended or completed four years of college and were currently employed in managerial or professional positions. The adolescents, age 13 to 15, were students. The dual parent families ranged in size from three to seven members with 51.7% composed of four members while the single parent families were almost equally distributed in size from two to five members. Dual parent families represented middle to upper middle income categories while the single parent families represented the low to middle income range.

Testing of the Hypotheses

The major variables in this investigation were health status, intrinsic motivation, family functioning, and health behavior (psychosocial and behavioral). Data on each of these variables and other personal characteristics were collected on a total of 206 individuals representing 73 families. The individuals selected were the father, the mother, and a young adolescent from 60 dual parent families and the mother and a young adolescent from 13 single parent families.

There were three primary purposes of this investigation: (a) to determine if there was congruency of family members' reports of the major variables, (b) to investigate relationships between variables which had support for congruency within the context of the family, and (c) to describe relationships between the variables which had support for congruency and the family realm variables, i.e., family type and family income, from the perspective of all family members. The discussion of the testing of hypotheses reflects these purposes.

Hypotheses 1 through 4: Congruence of Family Members' Measures

The influence of the family on the health behavior of its members was investigated through the examination of the congruence of the family members' reports on family and personal factors related to individual health and health behavior. It was assumed that congruence reflects the presence of previously unknown or minimally investigated family phenomena referred to as family characteristics. The hypothesized family characteristics investigated included: family health status, family intrinsic motivation, family functioning, and family health behavior, psychosocial and behavioral.

Two statistical approaches were used to examine congruency. The first approach, the Discrepancy Score Model (Klein, 1984), initially required the calculation of a family mean for each variable. This mean was then used to derive a family discrepancy mean (score) for each variable. The use of the t-test on all family discrepancy means (scores) determined congruency. Analysis of variance with repeated measures and the F-test were utilized in the second approach, the Conjunctive Model (Klein, 1984). Since the Health Practice Survey (HPS) was specifically designed to measure ten subscales of behavioral health behavior, both statistical approaches were utilized to examine congruency of the total measure as well as each of the subscales. The results of the data analyses using the t-test are presented in Table 18 and those using the F-test are presented in Table 19. Both will be discussed in relation to each of the hypotheses (Ho).

Ho 1

Health status scores of the parent(s) and young adolescent within the same family will be congruent.

The analyses indicated that congruency between health status scores (WI) of the parent(s) and young adolescent existed for the dual and single parent families. However, this result was supported only by the Conjunctive Model (Klein, 1984) and examination of the within-family factor available through the analysis of variance with repeated measures. The F-statistic was 1.32 (p=.272) for dual parent families and 1.16 (p=.303) for the single parent families. Congruency was not supported by the Discrepancy Score Model (Klein, 1984) which utilized calculated t-scores. The t score for the dual parent families was 16.71 (p=.01) and 6.74 (p=.01) for the single parent families.

Ho 2

Intrinsic motivation measures of the parents and young adolescent within the same family will be congruent.

Analyses of intrinsic motivation as measured by the Health Self-Determinism Index (HSDI) indicate that congruency between personal intrinsic motivation scores of the parents and young adolescent within the same family was not present. This result was supported by both the Discrepancy Score and Conjunctive Models (Klein, 1984). The t-scores for both the dual and single parent families exceeded their t statistic values, the t-scores were: 12.30 (p=.01) for the dual parent families and 6.48 (p=.01) for the single parent families. The F statistics were: 19.51 (p=.000) for the dual parent families and 17.84 (p=.001) for single parent

Table 18
The t-test for Determining Congruence (Aggregate Descriptive Statistics) on the Major Variables by Dual and Single Parent Families.

Variables	Dual Parent Families					Single Parent Families				
	n	Mean	SD	t	Sig.	n	Mean	SD	t	Sig.
Health Status (WI)	60	1.59	.74	16.71	.01*	13	.92	.49	6.74	.01*
Intrinsic Motivation (HSDI)	60	.67	.42	12.30	.01*	13	.67	.37	6.48	.01*
Health Behavior(p) (SCI)	60	.74	.37	15.46	.01*	13	.47	.39	4.29	.01
Health Behavior(b) (HPBQ-Part 2)	59	1.03	.55	14.29	.01*	13	.55	.55	4.24	.01
Health Behavior(b) (HPS) Total	60	.48	.26	14.21	.01*	13	.28	.28	4.90	.01*
Auto/Ped	60	.65	.37	13.75	.01*	13	.39	.31	4.51	.01*
Dental	60	.90	.42	16.71	.01*	13	.46	.37	4.82	.01*
Exercise	60	1.80	.92	15.11	.01*	12	.62	.60	3.75	.01
Food	60	.62	.34	14.24	.01*	13	.28	.17	5.98	.01*
Household	60	.78	.46	13.13	.01*	13	.53	.46	4.16	.01
Personal Care	60	.85	.45	14.70	.01*	13	.70	.56	4.46	.01*
Recreation	60	.89	.55	12.55	.01*	13	.79	.46	6.04	.01*
Sleep	60	.98	.52	14.40	.01*	13	.55	.44	4.55	.01*
Stress	60	.79	.41	14.92	.01*	13	.35	.22	5.73	.01*
Substances	60	.46	.32	9.89	.01*	13	.41	.39	3.75	.01
Family Functioning (FAD-7)	60	.79	.43	14.24	.01*	13	.37	.10	3.60	.01

p = psychosocial b = behavioral
*Significant: the statistical null hypothesis is rejected and therefore congruence does not exist.

Table 19
Analysis of Variance with Repeated Measures and F-test for Determining Congruence (Within-Family Factor) by Dual and Single Parent Families.

Variables	Dual Parent Families					Single Parent Families				
	SS	DF	MS	F	Sig.	SS	DF	MS	F	Sig.
Health Status (WI)	1.70	2	.85	1.32	.272	.62	1	.62	1.16	.303
Intrinsic Motivation (HSDI)	3.87	2	1.93	19.51	.000*	2.22	2	2.22	17.84	.001*
Health Behavior(p) (SCI)	1.08	2	.54	4.00	.021*	1.37	1	1.37	16.71	.002*
Health Behavior (HPBQ-Part II)	2.10	2	1.05	3.81	.025*	.22	1	.22	.84	.378
Health Behavior (HPS) Total	.69	2	.34	6.07	.003*	.25	1	.25	6.09	.030*
Auto/Ped.	2.62	2	1.31	11.94	.000*	.45	1	.45	4.87	.048*
Dental	2.28	2	1.14	6.24	.003*	.08	1	.08	.47	.508
Exercise	24.03	2	12.02	18.94	.000*	.08	1	.08	.22	.650
Food	1.57	2	.78	8.83	.000*	.00	1	.00	.06	.811
Household	2.28	2	1.14	7.47	.001*	1.56	1	1.56	12.53	.004*
Personal Care	3.18	2	1.59	8.85	.003*	2.80	1	2.80	15.08	.002*
Recreation	1.02	2	.51	2.35	.100	.24	1	.24	.58	.460
Sleep	1.12	2	.56	2.25	.110	.80	1	.80	4.20	.063*
Stress	.55	2	.28	1.71	.186	.32	1	.32	5.24	.041*
Substances	1.43	2	.72	13.34	.000*	.24	1	.24	1.63	.225
Family Functioning (FAD-7)	1.60	2	.80	5.30	.006*	.16	1	.16	1.24	.287

*Significant- the statistical null hypothesis is rejected and therefore congruence does not exist.

families. All supported the rejection of the hypothesis.

Ho 3

Health behavior scores of the parent(s) and young adolescent within the same family will be congruent.

Since there were three measures of health behavior, psychosocial measured by the Self-Care Inventory (SCI), and behavioral measured by the Health Protective Behavior Questionnaire - Part 2 (HPBQ-Part 2) and the Health Practices Survey (HPS), each was analyzed separately in evaluating this hypothesis. The results reveal that congruency between health behavior scores of the parent(s) and young adolescent within the same family system were not congruent as measured by the SCI when using the Conjuctive Model (Klein, 1984). The results for the SCI using the Discrepancy Score Model were mixed. The t-scores were: 15.46 (p=.01) for the dual parent families and therefore significant and 4.29 (p=.01) for the single parent families and therefore not significant. The F statistics were: 4.00 (p=.021) for the dual parent families and 16.72 (p=.002) for the single parent families.

On the HPS (Total), the t-scores were: 14.21 (p=.01) for the dual parent families and 4.90 (p=.01) for the single parent families. The F statistics were: 6.07 (p=.003) for the dual parent families and 6.09 (p=.030) for the single parent families. Again, both rejected the hypothesis.

The results were very mixed for the HPBQ-Part 2. The t-scores were: 14.29 (p=.01) for the dual parent families and 4.24 (p=.01) for the single parent families. Therefore, congruency was not supported for the dual parent families, but was supported for the single parent

families when assessed by the Discrepancy Score Model (Klein, 1984). Mixed findings also resulted when the analysis of variance with repeated measures and the F-test (Conjunctive Approach, Klein, 1984) were used. The F statistic, 3.81 (p=.025) was significant for the dual parent families and thus indicated congruency was not supported, but the F statistic, .84 (p=.378) was not significant for the single parent families and thus supported congruency.

Although the subscales of the HPS were not included in the hypotheses, they were investigated for congruency. This decision was supported by evidence that health behavior is multidimensional (Kulbok, 1985) and that the categories of behaviors conceptualized in the HPS (Bruhn & Parcel, 1982a) reflected multidimensionality. Once again the analyses revealed mixed results. The t-tests (Discrepancy Score Model, Klein, 1984) for each of the subscales for the dual parent families were significant and thus did not support congruency. However, congruence was supported for three subscales for the single parent families. The t statistics (p=.01) were: exercise (3.75), household (4.16), and substance use (3.75). The F-tests (Conjunctive Model, Klein, 1984) indicated support of congruence on some subscales for both the dual and single parent families. The F statistics for dual parent families were:. (a) recreation--2.35 (p=.100), (b) sleep--2.25 (p=.110), and (c) stress--1.71 (p=.186). There was also support for congruence for five subscales for the single parent families: (a) dental--.47 (p=.508), (b) exercise--.22 (p=.650), (c) food--.06 (p=.811), (d) recreation--.58 (p=.460), and (e) substance use--1.63 (p=.225). The only subscale demonstrating overlap between family types when the F-test was used was recreation.

A comparison of overlap of subscales for single parent families with the conceptual models and analytical approaches revealed that the subscales of exercise and substance use were consistently supported for congruency.

Ho 4

Family functioning scores of the parent(s) and young adolescent within the same family system will be congruent.

The analyses of the family functioning scores as measured by The General Functioning Subscale of the McMaster Family Device (FAD-7) indicated mixed support of this hypothesis. The family functioning scores of the single parent families were supported for congruency when using both the Conjunctive and Discrepancy Score models (Klein, 1984). The F-statistic was 1.24 (p=.287) and t-statistic was 3.60 (p=.01). However, neither model supported congruency for family functioning for the dual parent families, i.e., the F statistic was 5.30 (p=.006) and the t-statistic was 14.24 (p=.01).

Hypotheses 5 through 13: Relationships Between Variables which are Congruent Within the Context of the Family System

According to the F statistics resulting from the analysis of variance with repeated measures, congruency was supported on three major variables: health behavior in single parent families as measured by the SCI and the HPBQ-Part 2, health status in both single parent and dual parent families, and family functioning in single parent families. Although congruency was not supported for health behavior as measured by the HPS as a total measure, congruency was supported for several of the subscales in the HPS. The investigation of the relationships between these subscales and the subscales with

other variables with support for congruence were not included in the hypotheses and therefore were not assessed at this time. This section will focus on the relationships between the major variables with support for congruency as presented in the hypotheses. Only those hypotheses having both variables with support for congruency were examined; therefore, hypotheses which included intrinsic motivation, i.e., #7, #8, #9, and #10, were not examined. These were:

> Hypothesis 7: The intrinsic motivation mean score of each family system will correlate positively with the family's psychosocial health behavior mean score.
>
> Hypothesis 8: The intrinsic motivation mean score of each family will correlate positively with each of the family's two behavioral health behavior scores.
>
> Hypothesis 9: The intrinsic motivation mean score of each family will correlate positively with the family's health status mean score.
>
> Hypothesis 10: The intrinsic motivation score of each family will correlate positively with the family's composite family functioning mean score.

Hypotheses #5, #11, #13 and one component of hypotheses #6 and #12 were examined. The partial hypotheses resulted due to the examination of only one of the two measures of behavioral health behavior, i.e., the HPBQ-Part 2. The hypotheses as examined were:

Ho 5

The family health status mean score of each family will correlate positively with the family's psychosocial health behavior

mean score.

Ho 6

The family status mean score of each family will correlate positively with the family's health behavior mean score as measured by the HPBQ-Part 2.

Ho 11

The family functioning mean score of each family will correlate positively with the family's psychosocial health behavior mean score.

Ho 12

The family functioning mean score of each family will correlate positively with the family's behavioral health behavior mean score as measured by the HPBQ-Part 2.

Ho 13

The family functioning score of each family will correlate positively with the family's health status mean score.

The process used in the examination of these hypotheses follows. Initially a Pearson coefficient was obtained for the pairs of the variables for each family as identified in the hypotheses; then frequencies of these correlations by family type were established. It was determined a priori that each hypothesis would be supported if the majority (50%) of the families revealed a positive correlation of $r = .40$. Since the number of participating single parent families was small (n=13) and since Pearson correlations can not be computed with an n=2, correlations were calculated only for the dual parent families (Table 20). The maximum potential range of correlations, i.e., -1.00 to +1.00, with numerous negative correlations resulted for each hypothesis. The correlations were confirmed on a second

independent program suggesting the algebra was correct. The presentation of the results, i.e., as negative Pearson coefficients, means that four of the five hypotheses were rejected since 50% of the correlations did not exceed r=.40. However, Ho 13 regarding the FAD-7 and WI, i.e., family functioning and health status, was supported since 50% (n=27) of the correlations exceeded r=.40.

Hypotheses 14 through 18: Relationships Between Selected Major Variables and the Family Realm Variables of Family Type and Family Income

The investigation of Hypotheses 14 through 18 was based upon the previous finding of support for congruency of the variables. Therefore hypothesis 15, and one of the three components of hypothesis 17 were not investigated. These hypotheses were:

> Hypothesis 15: Dual parent families will have higher family mean scores on intrinsic motivation than female-headed single parent families, and
>
> Hypothesis 17: Dual parent families will have higher family mean scores on health behavior as measured by the SCI and PHS than female-headed single parent families.

Hypotheses 14, 16, two components of 17, and 18 were investigated.

Ho 14

Dual parent families will have higher family mean scores on health status than female-headed single parent families.

Ho 16

Dual parent families will have higher family mean scores on family functioning than female-headed single parent families.

Table 20
Frequency of Pearson Correlations for Dual Parent Families on Combinations of Major Variables with Support for Congruence.

	Frequency of Pearson Correlations				
Value Range	FAD-7 & HPBQ-Part 2 (n=59)	HPBQ-Part 2 & WI (n=51)	FAD-7 & WI (n=52)	Fad-7 & SCI (n=60)	WI & SCI (n=52)
-1.00 to .91	10	13	4	16	12
.90 to .81	4	5	1	10	6
.80 to .71	4	2	1	9	3
.70 to .61	5	4	1	3	-
.60 to .51	3	-	3	1	1
.50 to .41	3	2	2	2	2
.40 to .31	2	1	1	2	4
.30 to .21	1	1	3	2	3
.20 to .11	4	1	2	1	1
.10 to -.01	1	1	2	-	-
.00	1	3	1	-	1
+.01 to .10	1	2	0	-	1
.11 to .20	3	2	2	-	1
.21 to .30	1	-	1	-	1
.31 to .40	1	-	2	-	1
.41 to .50	1	4	6	-	2
.51 to .60	-	1	3	2	2
.61 to .70	2	1	0	-	1
.71 to .80	2	2	2	2	2
.81 to .90	2	-	4	4	-
.91 to +1.00	8	6	12	6	8
Mean	- .175	- .224	.218	- .399	- .192
Median	- .339	- .436	.383	- .767	- .380
SD	.692	.705	.653	.727	.102
Kurtosis	-1.236	-1.257	-1.136	- .533	-1.344
Skewness	.484	.489	- .415	1.093	.442
Range	1.995	1.996	1.998	1.997	1.999

Ho 17

Dual parent families will have higher family mean scores on health behavior as measured by the SCI and HPBQ-Part 2 than female-headed single parent families.

The results for these hypotheses are presented in Table 21.

Table 21

Family Mean Scores on Family Functioning, Health Behavior, and Health Status by Family Type

Measures	Family Mean Scores by Family Type			
	Dual Parent		Single Parent	
	Mn	SD	Mn	SD
Family Functioning (FAD-7)	1.93	.33	1.89	.37
Health Behavior (HPBQ-Part 2)	4.80	.40	4.87	.58
Health Behavior (SCI)	3.50	.21	3.62	.44
Health Status (WI)	2.18	.59	2.17	.66

The family mean scores for dual and single parent families on all three variables, i.e., family functioning, health behavior and health status are essentially the same. This suggests that these two samples represent similar populations of families on these variables. Therefore, there is no support of the hypotheses as stated. Review of the standard deviation of the means reveals that the variance of the family mean scores for both family types is once again essentially the same for family functioning and health status. However, an appreciable difference is noted for health behavior as measured by both the SCI and HPBQ-Part 2. The single parent families

in this sample are less homogeneous in respect to health behavior than are the dual parent families.

The last hypothesis investigates the relationship between the major variables with support for congruency and family income. Since intrinsic motivation, and one of the measures of health behavior, i.e. behavioral as measured by the PHS received no support for congruency, they were deleted from the hypothesis for the analysis. The hypothesis tested was:

Ho 18

The family mean scores of the family characteristics of family health status, family functioning, and family health behavior as measured by the SCI and HPBQ-Part 2 will correlate positively with family income.

The results are presented in Table 22. Pearson product moment correlations were calculated to assess these relationships. Although not specified in the hypothesis, Pearson coefficients for both family types are given. Very low positive correlations between health behavior and income are revealed for the two parent families {the HPBQ-Part 2 (r=.13) and the SCI (r=.02)} and between the SCI and income for the single parent families (r=.20). A very low positive correlation (r=.06) between health status and income for single parent families also resulted. All other hypothesized relationships had negative correlations. Specifically, these relationships in descending order were: family functioning and income for dual parent families (r=-.11), health status and income for dual parent families (r=-.17), health behavior (as measured by the HPBQ-Part 2) and income for single parent families (r=-.22), and family functioning and

income for single parent families (r=-.39). Although, there was partial support for this hypothesis, the Pearson coefficients did not exceed the predetermined significance level (r = .30), and therefore the hypothesis was rejected.

Table 22
Pearson Product Moment Correlation Coefficients Between the Major Variables with Support for Congruency and Income by Family Type.

Major Variables	Income by Family Type	
	Dual Parent (n=59)	Single Parent (n=13)
Family Functioning (FAD-7)	- .11	- .39
Health Behavior (HPBQ-Part 2)	.13	- .22
Health Behavior (SCI)	.02	.20
Health Status (WI)	- .17	.06

Summary of the Hypotheses Testing

The results of the hypotheses testing are presented in Table 23. The first four hypotheses explored the presence of family characteristics as determined by the congruency of multiple family perceptions on the variables of family functioning, intrinsic motivation, health behavior, i.e., psychosocial and behavioral, andhealth status. Congruency was examined through the application of two conceptual and statistical approaches: (a) the Discrepancy Score Model and the t-test, and (b) the Conjunctive Model and analysis of variance with repeated measures and its associated F-test. There was support for some hypotheses but the support differed by model and

Table 23
Result of Hypotheses Testing

Hypotheses	Dual Parent Family				Single Parent Family			
	Conj.*		Disc.@		Conj.*		Disc.@	
	S^	R+	S^	R+	S^	R+	S^	R+
Ho 1 - Ho 4								
(Congruent measures)								
Ho 1: Health Status	X		X		X			X
Ho 2: Intrinsic Motivation		X	X			X		X
Ho 3: Health Behavior:								
a) Psychosocial		X	X			X	X	
b) Behavioral								
1) HPBQ-Part 2		X	X		X		X	
2) HPS		X	X			X		X
Aud/Ped.		X	X			X		X
Dental		X	X		X			X
Exercise		X	X		X		X	
Food		X	X		X			X
Household		X	X			X	X	
Personal care		X	X			X		X
Recreation	X		X		X			X
Sleep	X		X			X		X
Stress	X		X			X		X
Substances		X	X		X		X	
Ho 4: Family Functioning		X	X		X		X	

Ho 5 - Ho 13
(Relationships between supported family characteristics within family)

	S^	R+
Ho 5 (Health status & psychosocial health)		X
Ho 6 (Revised) (Health status & HPBQ-Part 2)		X
Ho 7 (Not examined)		
Ho 8 (Not examined)		
Ho 9 (Not examined)		
Ho 10 (Not examined)		
Ho 11 (Family functioning & psychosocial behavior)		X
Ho 12 (Revised) (Family functioning & HPBQ-Part 2)		X

Table 23
Result of Hypotheses Testing (Continued)

	S^	R+
Ho 5 - Ho 13		
(Relationships between supported family characteristics within family)		
Ho 13 (Family functioning & health status)	X	
Ho 14 - Ho 18		
(Relationships between supported family characteristics, family type and income)		
Ho 14 (Health status mean scores of dual parent families higher than single parent families')		X
Ho 15 (Not examined)		
Ho 16 (Family functioning mean scores of dual parent families higher than single parent families')		X
Ho 17 (Revised) (Health behavior mean scores {SCI and HPBQ-Part 2} of dual parent families higher than single parent families)		X
Ho 18 (Revised) (Family mean scores of supported characteristics related to family income)		X

* Conjunctive Model
@ Discrepancy Score Model
^ Supported
+ Rejected

family type. The Discrepancy Score Model and the t-test failed to support congruency for all major variables for the dual parent families. However, there was support of family functioning and two of the health behavior measures, i.e., SCI and HPBQ-Part 2 for single parent families. This model and statistical approach also supported congruency for three of the ten subscales (exercise, household, and substances) of the third health behavior measure, the HPS, but again only for the single parent families.

There was also support of congruency for several of the variables when the Conjunctive Model and its allied statistical approach was used. Health status, behavioral health behavior as measured by the HPBQ-Part 2, and five subscales of the PHS (dental, exercise, food, recreation, and substance use) were supported for congruency for single parent families. Health status and three subscales of the HPS (sleep, recreation, and stress) were supported for congruency for dual parent families.

Hypotheses #7, #8, #9, and #10 were not investigated since there was no support for congruency of their respective variables. Hypotheses #5, #11, #13, and modifications of #6 and #12 were investigated for only dual parent families. Positive correlations between and among health status, behavioral health behavior as measured by the SCI and HPBQ-Part 2, and family functioning within the context of the individual family were proposed. The analysis yielded a large number of negative correlations and rejection of four of the hypotheses. Only the relationship regarding the family functioning and health status was supported.

Hypotheses #15 and one component of #17 were not investigated. Hypotheses #14, 16 and two components of #17 were investigated. These hypotheses focused on the relationship between and among the families' mean scores on health status, family functioning, and health behavior as measured by the SCI and HPBQ-Part 2 and the family realm variable of family type. Although higher mean scores for dual parent families were hypothesized, no support could be found and the hypotheses were rejected.

The final hypothesis, #18 focused on the relationship between health status, family functioning, and behavioral health behavior as measured by the SCI and HPBQ-Part 2 and the family realm variable of family income. Pearson product moment correlations gave minimal support for this hypothesis. Although low positive Pearson correlations resulted, they did not exceed the apriori r=.30, and the hypothesis was rejected.

CHAPTER V

OVERVIEW, DISCUSSION, CONCLUSIONS AND IMPLICATIONS

This chapter presents an overview of this study, a discussion of the findings, study conclusions, and implications for future investigations.

Overview of the Study

Numerous investigations aimed at the identification of individual factors which influence health behavior have been conducted by researchers representing a variety of disciplines. It is assumed that factor identification will enable health and related professionals to develop better intervention approaches which would facilitate better practices and promote personal well-being. Although many factors have been identified, personal, social, and environmental influences have been the primary components of the health behavior frameworks and models used in these investigations.

The primary purpose of this study was to investigate the possible influence of the family, an important social factor, on the health behavior of its members. Family researchers suggest that phenomena unique to the family, i.e., family characteristics, may exist and if present could reveal additional insights about the family's influence. Therefore, selected variables identified in

health behavior frameworks and models were evaluated from the perspective of a family characteristic. The assessment of the family characteristic was dependent upon the congruency among multiple family members' perceptions and behavior. The family characteristics investigated were: family health status, family intrinsic motivation, family health behavior (psychosocial and behavioral), and family functioning. Two approaches were used: (a) the Discrepancy Score Model (Klein, 1984) which utilized the statistical approach of the t-test on a derived discrepancy family score, and (b) the Conjunctive Model (Klein, 1984) which utilized the statistical approach of analysis of variance with repeated measures and the F-test.

Relationships were explored between the confirmed family characteristics within the context of the individual family and between the same characteristics and the family realm (Beutler et al., 1989) variables of family type and family income. Individual family member data including age, gender, ethnicity, religiosity, marital status, educational level, occupational status, and height and weight were also obtained for use in the description of the sample.

Sixty dual parent families composed of the father, the mother, and the young adolescent between the ages of 13 and 15, and 13 female-headed single parent families composed of the mother and the young adolescent between the ages of 13 and 15 comprised the sample. Families were identified through contacts with the religious leaders from a stratified random sample of religious congregations in a specified geographical area in the Greater Lansing Area Community. Each family member completed the same paper and pencil questionnaire

which represented a composite of measurement instruments appropriate to the selected major variables, i.e., health status [Ware Index (WI)], intrinsic motivation [Health Self-Determinism Index (HDSI)], health behavior [psychosocial as measured by the Self-Care Inventory (SCI) and behavioral as measured by the Health Protective Behaviors Questionnaire-Part 2 (HPBQ-Part 2) and the Health Practices Survey (HPS)], and family functioning [The General Subscale of the McMaster Family Functioning Device (FAD-7)]. Although each instrument had documented psychometric properties, the reliabilities of these same instruments were also established in this investigation for the subsamples of fathers, mothers, and adolescents.

Discussion of the Findings

The discussion of the findings has been organized from the perspective of the three primary research objectives of this investigation.

Objective 1

The first objective was to determine if there was congruence of family members' reports of health status, intrinsic motivation, health behavior, and family functioning.

The results of the analyses indicated that congruence was supported for some of the proposed family characteristics for both the dual and single parent families. They also demonstrated that differences occurred in relation to the conceptual and statistical approaches utilized and that support for congruency was present for a greater number of variables for single parent families than for dual parent families. Although Klein (1984) recommended researchers utilize multiple conceptual and statistical approaches, he also

indicated that the results may be difficult to interpret. The current outcome is a good example. Two questions were asked: Which of the two conceptual models and associated statistical approaches reflect congruency? and Why are there differences in the results?

The first question was considered initially from the perspective of number of hypotheses confirmed and applicability across groups. In this study the application of the Conjunctive Model (Klein, 1984) and its associated statistical approach, analysis of variance with repeated measures and the F-test demonstrated both. This model supported the presence of family characteristics for both family types on the greatest number of variables, i.e., 12 of the 32 tests (37.5%.) In contrast, the application of the Discrepancy Score Model (Klein, 1984) and its associated statistical approach, the t-test, supported the presence of the family characteristics only for single parent families and on fewer variables , i.e., 6 of the 32 tests (18.7%). Although this suggests that the former approach may be superior, other factors need to be considered. In general, congruency was supported much more frequently for the single parent families. Potential explanations include the following: the family identification process influenced this outcome or the single families who participated are different from the participating dual parent families. Some questions resulting from these results are: (a) Would the same result occur if the single parent family sample size had been equivalent to that of the dual parent families? (b) Is there something special about the dyad relationship? (c) Is there really less variance in the single parent family?

The analyses were limited to two of the five possible approaches identified by Klein (1984). Analyses of the same data using the other models, i.e., the Additive Model, the Disjunctive Model and the Weighted Model, could assist in determining which variables are stronger contenders for being true family characteristics. It may be that one model and/or analytical approach is more appropriate when investigating health and health behavior variables. It is also important to note that there are other statistical approaches, e.g., factor analysis, cluster analysis, canonical correlation, and discriminant function analysis, which are appropriate for use with the Conjunctive Model (Klein, 1984). Their application to data from this study could further support or possibly refute the current findings.

An investigative concern regarding the comparison of the results of this study to other investigations was present. These analyses were exploratory in nature and therefore could not be directly compared to those of other investigations. There was no evidence that these selected conceptual and statistical approaches had been previously used on similar data. In the current study, health status was the only variable to be supported as a family characteristic for both family types. However, no previous investigations were located which viewed health status as a family characteristic and therefore no comparison could be made. Also, health status was a one item variable; it was the only variable which did not meet the criteria for a family characteristic as proposed by Fisher et al. (1985).

Family functioning and health behavior, as measured by the HPBQ-Part 2 and SCI, were also supported as family characteristics

for the single parent families. Although behavioral health behavior, as measured by the total HPS, did not support congruency, several of its subscales did and therefore each could be considered as a family characteristic.

The investigation of both family functioning and health behavior by other researchers has been limited. According to Epstein et al. (1983) minimal investigation of the FAD (the total instrument) and the FAD-7 as family measures has occurred. However, exploration of both as family measures has been recommended (Epstein et al., 1983). In regards to health behavior, there was no evidence that psychosocial health behavior as measured by the SCI had been investigated as a family measure. However, composite measures from the family perspective for a range of health practices were utilized by Loveland-Cherry (1986) and Pratt (1976). Although both have been cited earlier in the text, they are reviewed here because each utilized health behavior as a family measure. An in-depth review of these studies demonstrates the current status of the use of family measures (scores) in regards to health and health behavior.

Pratt (1976) developed individual member indexes as composite measures on 15 different variables. The individual's score on each index resulted by applying a formula that assigned arbitrary weights to the answer categories and summed the answers. These sums were used in the calculation of family index scores. Two family indexes were developed: (a) a family structure index, which included the individual indexes related to interaction among members, autonomy, and extramural participation, and (b) a family health/health behavior index, which included the individual indexes related to personal

health practices, e.g., sleep, exercise, dental hygiene, nutrition, substance use, use of preventive medical services, health problems and health status. After experimenting with different formats, individual family member scores on each index were dichotomized into high or low scores. High scores were coded as number one and low scores were coded as number two. These codes were then summed for the family members, i.e., mother, father, and child, and a family index score with a range from 0 to three was created. These family index scores were used in the analyses, correlation coefficients and regression analysis, for the postulated hypotheses. No additional information about the individual or family index scores was available. However, Pratt (1976) did state that these global measures of the variables were research limitations. This research assumed that the family characteristics of family structure, which is considered consistent with family functioning, and family health/health behavior existed and analysis proceeded based upon this assumption.

Loveland-Cherry (1986) modified selected indices developed by Pratt (1976) to measure health practices and selected variables of social networks and socialization patterns between a convenience sample of 20 dual parent and 21 female-headed single parent families. The variable of personal health practices for each individual was measured by combining the scores for the indices of sleep, exercise, dental hygiene, smoking, alcohol use, and nutrition. Social networks were measured by Pratt's (1976) indices for community participation, number of towns used for any purpose, child's activities, and combined family extramural participation. The variable socialization

patterns was measured by the indices of control of child by parent, supportiveness of child by parents, and child's autonomy. A composite family score was derived for each index by summing the individual family members' scores and dividing this sum by the number of family members. The investigation did not hypothesize the presence of the family variable, but utilized the family scores to detect similarities between the dual parent and single parent families. There was no statistical evidence, via the t-test, that differences existed between the two family types.

Some comparisons between the study by Loveland-Cherry (1986) and the current study can be made. Although Loveland-Cherry (1986) utilized the Additive Model (Klein, 1984), rather than the Discrepancy Score or Conjunctive Models (Klein, 1984), the practices included in the personal health practices index were similar to those in both the HPBQ-Part 2 and the HPS. Also, dual and single parent families participated in both investigations. One comparison can be made regarding the respondents' personal characteristics. The age and educational level of the mothers and fathers participating in these two studies were similar. In addition, the mean age of the children in Loveland-Cherry's sample was 11 and the mean age of the children in the current study sample was approximately 13 to 14. Family income of both family types in these two studies was also similar.

Loveland-Cherry (1986) concluded that there were no differences between families. When the simple family mean is used for family comparisons in the current study, Loveland-Cherry's conclusion was confirmed. However, if the family discrepancy mean scores (Table 18)

are used for the comparisons a different result occurs. A comparison of means on the HPBQ-2 and the HPS for both dual and single parent families suggests differences in practices by family type. On the HPBQ-Part 2, the dual parent family mean was 1.03 while the single parent family mean was .55. On the HPS the dual parent family mean was .48 while the single parent family mean was .28. Since both instruments attempt to assess the frequency of the respondents' health practices, these findings suggest that the dual parent families engage in more health enhancing practices than the single parent families. However, these findings are subject to error and cannot be considered accurate due to the process utilized to develop the family discrepancy mean score.

The lack of congruence for the variables in this study may be due to several factors. The first to be considered is the fact that congruence truly does not exist. This may indeed be the case for intrinsic motivation since neither conceptual approach supported congruency for dual or single parent families. Another factor to consider is the impact of the conceptual model and the selected statistical approach. A third factor to consider is the adequacy of the measurement instruments; they may enhance or diminish the assessment of congruence. In this study composite measures were used for intrinsic motivation, health behavior, and family functioning. The use of single item measures, e.g. health status, or 4-6 item measures, such as those in the HPS subscale, sleep, may be more appropriate and facilitate the identification of congruence. A fourth factor, sample size and characteristics, may also be important. In this study the number of single parent families (n

=13) was small and not adequate. It is also possible that the number of dual parent families (n = 60) while sizable was not adequate. The investigation of congruence on these variables may require an even larger sample. Family configuration may also be a factor, this investigation focused on three members for the dual parent family and two members for the single parent family. The relationships between the pairs in the three member families were not assessed. The investigation of the proposed family characteristics from the perspective of pairs of family members may yield additional information about congruence and the family. Another factor to consider is that children of this age range, 13 to 15, although capable of incorporating the health practices, which was an assumption of this investigation, may not reflect the incorporation of the health practices at this point in their development.

Objective 2

The second objective was to investigate the relationships between the family characteristics of family health status, family intrinsic motivation, family health behavior, i.e., psychosocial and behavioral, and family functioning.

The investigation of this objective was dependent upon the support for congruence of the proposed family characteristics. The variables with support for congruence were health status, health behavior, as measured by the SCI and HPBQ-Part 2, and family functioning. Therefore, only the relationships between these family characteristics were assessed. The approach selected to assess these relationships follows: individual member mean scores on these variables within each family were compared and Pearson coefficients

for the relationships determined. Since the number of single parent families was only 13 and since Pearson correlations can not be computed with an n = 2, correlations were calculated only for the dual parent families. Although each of the hypotheses indicated that a positive correlation would result, only the relationship between the family functioning (FAD-7) and health status (WI) was supported. Although this suggests that an increase in both occurs, it is not known which variable facilitates the positive relationship. Pratt (1976) demonstrated that "family elements", i.e., variables which are congruent with the items of the FAD-7, are related to health behavior. Although the relationship between health behavior and health status was not specifically investigated, it can be speculated that health behavior may be a mediating variable or that a direct relationship exists between family functioning and health status.

Many negative correlations occurred when investigating these hypotheses. These may occur due to sample size. According to Glass & Hopkins (1984), correlation cannot be relied upon when the n is small. Perhaps 60 families were inadequate for this statistical approach and therefore the results are not reflecting an accurate picture of the hypothesized relationships. Another possibility requiring consideration is that the negative correlations may be true negative correlations. If so, the analyses suggest that families cluster at the two ends of the possible range of correlations and that there are differences between families on the combinations of these variables. Another possible explanation of the negative correlations is that one member's score may be considerably higher than the other two members' scores, thus facilitating the negative

correlation. This could be examined by looking at the mean scores for the compared variables for each family. Another possibility is that the Pearson product moment correlation is not the appropriate test. Further analysis using a non-parametric approach, e.g., the Spearman Rank Correlation (Glass & Hopkins, 1984), or Kappa coefficient (Uphold & Harper, 1986) could provide different results.

The intent of these hypotheses was to investigate relationships between the major variables from the within-family perspective. Although other investigations focusing on similar variables from a between family perspective were located (Loveland-Cherry, 1986; Pratt, 1976), no other investigation could be located which focused on these variables from the within-family perspective.

Objective 3

The third objective was to describe selected relationships between the family characteristics, i.e., family health status, family intrinsic motivation, family health behavior, and family functioning, and the family realm (Beutler et al., 1989) variables of family type and family income.

The relationships investigated were once again dependent upon the variables supported for congruency. Therefore, the relationships between the family characteristics with support, i.e., health status, health behavior, as measured by the SCI and HPBQ-Part 2, and family functioning, and the family realm variables of family type and family income were investigated. Pearson product moment correlation coefficients between and among these variables revealed low positive and low negative relationships. Although three low positive correlations occurred between health behavior and income, they were

considered to be non-significant since they failed to reach the criteria of r=.30. According to Glass and Hopkins (1984, p.115), "the lower the correlation, the greater the margin of error". Two of these correlations require specific comment: (a) behavioral health behavior as measured by the HPBQ-Part 2 (r=.13 for dual parent families), and psychosocial health behavior as measured by the SCI (r=.20 for single parent families). A similar finding to the first was reported by Loveland-Cherry (1986); however, neither finding was suggestive of the positive relationship described in other investigations (Berkman & Breslow, 1983; Coburn & Pope, 1974; Kasl & Cobb, 1966). The high educational level of the adult respondents may be a significant influencing factor.

The second finding suggested that psychosocial health practices and income are related for single parent families. Investigation of which variable influences the other requires further study. Two low positive relationships, i.e., between health status and income (r=.06) for the single parent families and between psychosocial health behavior and income for dual parents, were also non-significant.

The other correlations were negative; the largest negative correlations, r=-.22 and r=-.39, occurred respectively between health behavior and income and between family functioning and income in the single parent families. Again possible explanations for these results include the small size of the two samples, the homogeneity of the samples, and the utilization of inadequate and/or inappropriate measurement instruments.

Conclusions

The major conclusions of this study as organized by the three major objectives are presented:

Objective 1

1. Personal health status was supported as a family characteristic for both dual and single parent families as assessed by the Conjunctive Model.
2. Personal intrinsic motivation was not supported as a family characteristic for either the dual or single parent families as assessed by the Conjunctive or Discrepancy Score Models.
3. Psychosocial health behavior was supported as a family characteristic for single parent families as assessed by the Discrepancy Score Model.
4. Behavioral health behavior (as measured by the HPBQ-Part 2) was supported as a family characteristic for single parent families as assessed by the Conjunctive Model.
5. Three personal health behavior subscales of the HPS, i.e., sleep, stress, and recreation, were supported as family characteristics for dual parent families as assessed by the Conjunctive Model.
6. Five health behavior subscales on the HPS, i.e., dental, exercise, food, recreation, and substance use, were supported as family characteristics for single parent families as assessed by the Conjunctive Model.
7. Three health behavior subscales on the HPS, i.e.,

exercise, household, and substance use, were supported as family characteristics for single parent families as assessed by the Discrepancy Score Model.

8. Family functioning was supported as a family characteristic for single parent families as assessed by the Discrepancy Score and Conjunctive Models.

Objective 2

9. The health status mean score of each family did not correlate positively with the family's psychosocial health behavior mean score as measured by the SCI.
10. The health status mean score of each family did not correlate positively with the the family's behavioral health behavior score as measured by the HPBQ-Part 2.
11. The family functioning mean score of each family did not correlate positively with the family's psychosocial health behavior mean score as measured by the SCI.
12. The family functioning mean score of each family did not correlate positively with the family's behavioral health behavior mean score as measured by the HPBQ-Part 2.
13. The family functioning mean score of each family did correlate positively with the family's health status mean score.

Objective 3

14. Dual parent families and single parent families had similar family mean scores on family functioning, health behavior (as measured by the HPBQ-Part 2. and the SCI),

and health status.

15. There were non-significant low positive Pearson correlations between health behavior (as measured by the HPBQ-Part 2) and income for dual and single parent families and between health status and income for single parent families.
16. There were non-significant negative Pearson correlations between family functioning mean scores and income, and between family health status mean scores and income for the dual parent families.
17. There were non-significant negative Pearson correlations between family functioning mean scores and income and between health behavior mean scores (as measured by the HPBQ-Part 2) and income for the single parent families.

Implications of the Study

The implications of this study can be viewed from two perspectives: the continued investigation of this study's data set, and future studies.

The Continued Investigation of this Data Set

This data set is large and therefore offers many opportunities for continued analysis. The investigator plans to pursue the investigation of the data and presents here some of the analyses currently being considered.

Congruency was supported for single parent families on nine of the 16 possible variables which were evaluated as potential family characteristics. A question previously raised concerned the effect family size and composition had on this outcome. The investigation

of the conceptual models using only mothers and adolescents from the dual parent families is planned. This could provide additional information regarding the impact of a third family member, the father, on congruency. The investigation of the father-adolescent dyad as representative of the family using the same approaches is also anticipated. Another potential approach for the examination of congruency would be to create dual and single parent families artificially. This could be accomplished by randomly selecting non related family members who participated in the study. A created dual parent family could be composed of the mother from D1, the father from D25, and the young adolescent from D45. A created single parent family could be composed of the mother from S2 and the young adolescent from S12. These created family groups, i.e., dual and single parent families, could then be used as comparison groups of unrelated individuals. Congruency should be least likely to exist under these circumstances.

The investigator plans to assess these variables through the application of alternative models and statistical approaches (Klein, 1984). This is particularly important since this study's results showed there was inconsistency in confirmation of a variable when the two approaches, Discrepancy Score and Conjunctive Models, were used.

Although it was not the intent of this investigation to investigate the variables by subsamples, the examination of the data by gender and family position, i.e., father, mother, and adolescent are just two of the potential areas to explore. Data were not examined from the individual perspective or by a specific health practice. The investigation of smoking practices or use of

automobile safety belts are just two of the 127 practices included in the Health Practices Survey (HPS) which can be analyzed. Preliminary data of the correlations between the major variables and the subscales of the HPS by subsample dyads, i.e., the father and the mother, the mother and the adolescent, and the father and the adolescent, have been included as Appendix K and will be investigated in the future.

The HPS has demonstrated potential as a measure of health practices, but requires a great deal of refinement and verification of its psychometric properties. Only the initial steps were taken in this study. Evaluation of the subscales as dimensions of health behavior as conceptualized needs to occur. According to Nunnally (1978) factor analysis or cluster analysis may be used. However, cluster analysis may be more appropriate since it can be used when the sample size is reasonably small.

Several unplanned outcomes related to the HPS have occurred. A copy of the HPS has been forwarded to each contributing party or organization participating in its development. It is viewed as a potential pool of items from which specific items will be selected and tested in the 1989-1990 health practices component of different tests developed for the Michigan Model for Comprehensive Health Education (Vogel, personal communication, February, 1989). The representative at the Sleep Disorder Clinic, Ingham Medical Center, Lansing, Michigan, has also indicated an interest in future cooperative investigative studies which could utilize the HPS as part of the health evaluation of clients using the clinic services. Two of the religious leaders requested copies; they thought the items

could be used to generate discussion about health practices with adolescents in their youth organizations. At the various data collection sites, many parents had questions about the items included in the HPS; they indicated that it facilitated self-assessment of their personal health practices, raised questions about the influence of their behavior on their children, and encouraged them to review which specific practices were emphasized in their family.

Two additional specific planned activities are: (a) the communication of information about the alpha reliabilities and sample characteristics to the authors of the measurement instruments, and (b) the communication of the use of the General Functioning Subscale (FAD-7) as a composite family measure with the authors of the McMaster Family Functioning Device.

Future Studies

This investigation revealed that the application of multiple conceptual models to relational data needs to be pursued. It is possible that different models are appropriate for different types of data. Therefore, the experimentation with a variety of models and statistical approaches could narrow the possibilities to a few. The comparison of the models' results using different configurations of family data, i.e., father-mother, father-child, mother-child, father-mother-child, father-mother-child-child, and child-child, may also assist in the exploration of congruence.

This study utilized a newly created conceptualization of the family and individual factors which influence health and health behavior. The adoption of this framework by other investigators may

further clarify the proposed conceptualization and the frameworks from which this model was constructed.

This study assumed that family characteristics were the result of the family's social atmosphere and members' interactions. Future investigations need to consider the process involved in the development of the family characteristics in addition to the assessment of the presence or absence of family characteristics. This suggests the examination of individual and family factors related to health and health behavior over time, e.g., longitudinal or cross-sectional investigations by family developmental levels. In addition, each of the measurement instruments used in this study should be utilized in other similar studies so that their psychometric properties can be further assessed. It was apparent from the literature review that few psychometrically supported appropriate instruments were available.

The assumption was made that the information from the respondents was accurate. This assumption needs confirmation which may occur through a variety of methods, e.g., observation of the behaviors by the investigator, reports of the respondent's practices by another family member, and/or the use of an individual measure of social desirability (Nunnally, 1978).

Another important consideration for further research is sample size and composition. Certainly sample size for the single parent families was a limiting factor in this study. Perhaps, samples larger than 60 are essential when conducting research on family characteristics. The homogeneity of the sample in this study, i.e., income, education, ethnicity, may have contributed to the lack of

significant findings. This result is primarily attributed to the sampling approach. Although a stratified random sampling of churches by census tract data, i.e., level of education and median income, was conducted in order to locate families with different socioeconomic characteristics, the families' characteristics were highly homogeneous. They did not reflect the characteristics of the individuals in the census tract data; however, the 1980 census data are nearly ten years old and likely to be inaccurate. Another complication of this sampling approach was that many of the small churches located in the low income and low educational level census tracts could not be contacted and, when a contact was made, the clergy declined to participate in the family identification process. Family identification through other sources, e.g., public schools, clinics, could yield a more heterogeneous sample of families.

This study represents an initial step in the investigation of the influence of the family on the health and health behavior of its members. Although the exploration of the selected family characteristics related to health and health behavior presented numerous conceptual and methodological challenges, the results are encouraging and suggest an array of potential future investigations. The results of these investigations could provide guidance to educators, health care and related professionals in their quest to promote health enhancing practices of individuals and families.

APPENDIX A

July 11, 1989

Dear :

During the past several weeks I have been contacting the religious leaders in the Greater Lansing Area. The purpose of these contacts has been to secure their assistance in identifying families, specifically two parent and single parent families who have an oldest child between 13 and 16 years of age, who would be interested in participating in a study regarding the influence of the family on the development of health practices of its members. This letter provides introductory information about this study. Your review of the following information and assistance in identifying families in your congregation would be most appreciated.

During the past decade individuals and families have been encouraged by their health professionals, the media, and educational programs to get adequate nutrition, sleep and exercise, to use sound dental practices, to avoid smoking and drug use, to reduce stress, and to avoid or drink alcohol in moderation. This is based on the belief that the regular use of these health practices will enhance personal health and well being. While the family has been identified as an important influence on the development of these health practices by its members, only a few studies have attempted to examine the role of the family in the adoption of these practices by family members. Family and health promotion researchers believe that more detailed information about the family, its characteristics and health practices, is essential to the identification of more effective intervention stategies aimed at altering poor health practices and improving the health of families and their members.

While each family would certainly contribute to our current understanding, past research suggests a selection of families with certain characteristics is highly desirable. Therefore, two parent families and female-headed single parent familes having a 13 to 16 year old who is the oldest child are being sought.

All information given by the family members, the adults and the adolescent, will be treated with strict confidence. No one, including myself, will be able to associate the responses with the individual or family name.

Each participating family will be asked to select a common date, time and location when the participating members can complete individual paper and pencil questionnaires which can be completed in approximately one hour. The dates and locations are being scheduled during July and August, Monday through Thursdays at 7:30 p.m., at various churches throughout the Lansing-East Lansing area. Such an arrangement could be made with you so that families could complete the questionnaire at your church.

The questionnaire is composed of questions in four areas: (a) personal characteristics, such as age, sex, education, occupation, (b) family relationships, (c) attitudes toward health and health care, and (d) health practices, such as those related to nutrition, sleep, exercise, smoking, stress reduction, dental care, and the use of alcohol and drugs. No information of a sexual nature is requested.

A composite of the study's findings which reflects the information from all participating families will be available at the family's request. A $10.00 contribution will be forwarded to the religious congregation specified by each participating family. In addition a composite of the study's findings would be forwarded to you.

Thank you for reviewing this information and considering this request. I will contact you by phone in a couple of days to answer questions you may have and discuss your interest in assisting with the identification of families for this study.

Sincerely,

Joan E. Wood

Joan E. Wood
Doctoral Candidate
Department of Family and Child Ecology
College of Human Ecology
Michigan State University
(Ph.) 332-0985

APPENDIX B

August 8, 1989

Dear Ms.:

Thank you for consenting to participate in my study about the influence of the family on the health practices of children. Enclosed for your review is the "Consent Form" and a list of the dates and locations scheduled where you can complete the study questionnaire. Please sign the "Consent Form" and select a date/location by placing an "x" next to it on the enclosed form. Return both to me in the stamped addressed envelope provided so that I will know a couple days in advance of the date selected. I will contact you prior to the date to confirm your selection. If these dates are not convenient, please contact me by phone at 332-0985 to schedule another date.

Thank you again.

Sincerely,

Joan E. Wood

Joan E. Wood
Doctoral Student
College of Human Ecology
Michigan State University

APPENDIX C

Consent Form

We, the undersigned, voluntarily consent to participate in a scientific and educational study conducted by Joan E. Wood, a doctoral student in Family and Child Ecology, College of Human Ecology, Michigan State University. We understand that this study is being conducted under the guidance of Ms. Wood's program committee chaired by Dr. Linda Nelson.

We understand that the main purpose of this study is to examine the role of the family in the adoption of health practices by its members. Information about our practices, such as nutrition, sleep, exercise, smoking, stress, dental care, and the use of alcohol and drugs, will be sought.

We understand that each of us will complete a questionnaire which asks for information about our health practices, attitudes toward health and health care, family relationships and ourselves, such as age, sex, and religion.

We understand that a $10.00 donation will be forewarded to the religious congregation specified below upon completion of our participation.

We understand that we or any one of us may discontinue our participation at any time without penalty, are free not to answer certain questions, and may contact Ms. Wood at 332-0985 if we should have any questions or concern about the study.

We understand that our responses will not be identified individually but will be incorporated into a composite of the study's findings which will include information from all participating families, that a copy of this composite will be made available upon our request, that information given by each of us is not available to other family members who complete the survey, and that our individual responses will remain anonymous, so that even Ms. Wood is unable to associate our responses with our names.

We desire to participate in this study and consent and agree. We/I, as legal parent(s) of the young adolescent named below, give our/my permission for him/her to participate in the study.

_____ _____

Adult Female Signature Date

_____ _____

Adult Male Signature Date

_____ _____

Young Adolescent Signature Date

_____

Address City, Town, State ZIP

_____

Religious Congregation

PLEASE MAIL THE Consent Form IN THE STAMPED ENVELOPE BY _____.

APPENDIX D

List of Dates and Locations

___ Thursday, June 1, 1989 (7:30 p.m.)	Edgewood United Church 469 N. Hagadorn	E. Lansing
___ Tuesday, June 6, 1989 (7:30 p.m.)	Pilgrim Congregational Church Church of Christ 125 S. Pennsylvania	Lansing
___ Wednesday, June 7, 1989 (7:30 p.m.)	Edgewood United Church 469 N. Hagadorn	E. Lansing
___ Thursday, June 8, 1989 (7:30 p.m.)	Faith United Methodist Church 4301 S. Waverly Rd.	Lansing
___ Tuesday, June 13, 1989 (7:30 p.m.)	Pilgrim Congregational Church Church of Christ 125 S. Pennsylvania	Lansing
___ Wednesday, June 14, 1989 (7:30 p.m.)	Faith United Methodist Church 4301 S. Waverly Rd.	Lansing
___ Monday, June 19, 1989 (7:30 p.m.)	St. Andrew Orthodox Catholic Church 1216 Greencrest Ave.	E. Lansing
___ Wednesday, June 21, 1989 (7:30 p.m.)	First Church of the Brethren 3020 S. Washington	Lansing
___ Monday, June 26, 1989 (7:30 p.m.)	Faith United Methodist Church 4301 S. Waverly Rd.	Lansing
___ Tuesday, June 27, 1989 (7:30 p.m.)	Grace United Methodist Church 1900 Boston Blvd.	Lansing
___ Wednesday, June 28, 1989 (7:30 p.m.)	St. Andrew Orthodox Catholic Church 1216 Greencrest Ave.	E. Lansing
___ Tuesday, July 11, 1989 (7:30 p.m.)	River Terrace Christian Reformed Church 1509 River Terrace Dr.	E. Lansing
___ Thursday, July 12, 1989 (7:30 p.m.)	North Presbyterian Church 108 W. Grand River Ave.	Lansing
___ Tuesday, July 18, 1989 (7:30 p.m.)	River Terrace Christian Reformed Church 1509 River Terrace Dr.	E. Lansing
___ Wednesday, July 19, 1989 (7:30 p.m.)	St. Casimir Catholic Church 815 Sparrow Ave.	Lansing

___ Thursday, July 20, 1989 (7:30 p.m.)	Bethlehem Lutheran Church 549 E. Mt. Hope Ave. Lansing
___ Sunday, July 23, 1989 (7:15 p.m.)	Holmes Road Church of Christ 321 E. Holmes Rd. Lansing
___ Tuesday, July 25, 1989 (7:30 p.m.)	Maranatha Baptist Church 2300 N. Waverly Lansing
___ Thursday, July 27, 1989 (7:30 p.m.)	Trinity Lutheran Church 501 W. Saginaw Lansing
___ Sunday, July 30, 1989 (7:15 p.m.)	Holmes Road Church of Christ 321 E. Holmes Rd. Lansing
___ Wednesday, August 2, 1989 (7:30 p.m.)	Emanuel First Lutheran Church 1001 N. Capitol Lansing
___ Thursday, August 3, 1989 (7:30 p.m.)	South Lansing Church of Christ 4002 S. Pennsylvania Lansing
___ Tuesday, August 8, 1989 (7:30 p.m.)	River Terrace Christian Reformed Church 1509 River Terrace Dr. E. Lansing
___ Thursday, August 10, 1989 (7:30 p.m.)	Unitarian Universalist Church of Greater Lansing 855 Grove Street E. Lansing
___ Wednesday, August 16, 1989 (7:30 p.m.)	University United Methodist Church 1120 S. Harrison E. Lansing
___ Thursday, August 17, 1989 (7:30 p.m.)	St. Casimir Catholic Church 815 Sparrow Lansing
___ Sunday, August 20, 1989 (7:15 p.m.)	Holmes Road Church of Christ 321 E. Holmes Rd. Lansing

APPENDIX E

The following statements are about health and health-related issues. Please circle one number to indicate how much you disagree or agree with each statement.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
a. For me, it takes more willpower than I have to do the things that I know are good for my health	1	2	3	4	5
b. Most of the time I know what to do for my health without needing to contact a doctor	1	2	3	4	5
c. Only a doctor really knows whether or not I am in good health	1	2	3	4	5
d. Some people think that a doctor should decide about what to do about their health care, but I feel that I should decide	1	2	3	4	5
e. I worry about my health	1	2	3	4	5
f. Whatever a doctor suggests about my health is OK for me to do	1	2	3	4	5
g. I know, without someone else telling me, when I am in good health	1	2	3	4	5
h. I more often agree with what doctors and nurses think instead of my own opinion	1	2	3	4	5

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
i. I feel good about how I take care of my health	1	2	3	4	5
j. I do things to help my health even though a doctor or nurse has not suggested these things to me	1	2	3	4	5
k. I'm really never sure that I'm doing the right things for my health until I've checked it out with a doctor	1	2	3	4	5
l. My own ideas about taking care of my health are often better than the ideas which doctors and nurses have	1	2	3	4	5
m. I don't do as well at taking care of my health as other people I know	1	2	3	4	5
n. I prefer that doctors and nurses help me plan my health practices	1	2	3	4	5
o. I know, without a doctor telling me, that I'm doing the right thing for my health	1	2	3	4	5
p. What a doctor thinks about my health is more important than what I think	1	2	3	4	5
q. I know what I'm doing when it comes to taking care of my health	1	2	3	4	5

APPENDIX F

In addition to physical health habits, there are many other things a person may do to influence his or her health and sense of well-being. Some of these are specific to certain commonly-experienced situations. Some are more general.
For each statement about these situations, circle the one response which most accurately reflects how often you carry out the practice.

	Never	Rarely	Sometimes	Usually	Always
When I am faced with a problem:					
1. I find out more about the problem so I can handle it better	1	2	3	4	5
2. I deal with it as soon as possible	1	2	3	4	5
3. I handle it one step at a time	1	2	3	4	5
4. I think through different ways to deal with it	1	2	3	4	5
5. I make positive statements to myself such as: "I can handle this."	1	2	3	4	5
6. I prepare myself by imagining doing and saying exactly what I would want to do and say to handle the problem	1	2	3	4	5
7. I look upon problems as challenges	1	2	3	4	5
8. When faced with a problem that I cannot solve, I share my feelings about the problem with someone I trust	1	2	3	4	5
9. I express my feelings freely	1	2	3	4	5
10. I seek support from other persons	1	2	3	4	5
When I am depressed or feeling down:					
11. I treat myself to some thing or some activity which usually makes me feel good	1	2	3	4	5
12. I participate in strenuous physical exercise such as jogging, or biking	1	2	3	4	5
13. I express my feelings	1	2	3	4	5
14. I talk over my feelings and my situation with someone I trust	1	2	3	4	5

	Never	Rarely	Sometimes	Usually	Always
When I am feeling tense or anxious:					
15. I consciously allow my muscles to relax	1	2	3	4	5
16. I participate in physical exercise	1	2	3	4	5
17. I take a deep breath and let go of the tension	1	2	3	4	5
18. I find a place to be that is quiet	1	2	3	4	5
19. I purposely eat slowly	1	2	3	4	5
20. I take showers or baths or sit in a hot tub to relax	1	2	3	4	5
21. I speak openly about my feelings if the situation is appropriate	1	2	3	4	5
22. I picture myself in a relaxing situation to help myself relax	1	2	3	4	5
23. I take the time to get away or do something relaxing, such as listening to music, reading a book, meditating, praying, playing with a pet, etc	1	2	3	4	5
When I am experiencing a conflict with someone:					
24. I try to resolve the conflict by talking with that person	1	2	3	4	5
25. I select a time to talk with that person, when he/she is not too busy	1	2	3	4	5
26. I keep to the issue at hand	1	2	3	4	5
27. I direct the conversation to the behavior and not the personality characteristics of the person. (For example, "I want you to do the dirty dishes that you agreed to do" rather than "You sure are irresponsible to let these dirty dishes pile up.")	1	2	3	4	5
28. I listen to the person's side of the story as well as express my view of the situation	1	2	3	4	5

When I am experiencing a conflict with someone:	Never	Rarely	Sometimes	Usually	Always
29. If I am extremely angry, I let off steam before dealing with that person.....	1	2	3	4	5
General Self-Care Habits:					
30. I keep track of what I have to do by keeping a calendar.....	1	2	3	4	5
31. I set realistic goals for myself.....	1	2	3	4	5
32. I find some time each day to be alone.....	1	2	3	4	5
33. I express words of affection to persons I care about.....	1	2	3	4	5
34. When someone expresses anger towards me, I tell them that I know they are angry.....	1	2	3	4	5
35. I organize my time so that I can do what I need to do.....	1	2	3	4	5
36. I change my goals if they prove to be too high, too low, or not good for the current time.....	1	2	3	4	5
37. I listen to people without finishing their sentences for them.....	1	2	3	4	5
38. I express affection physically to persons I care about.....	1	2	3	4	5
39. I express my feelings of anger without hurting myself or others.....	1	2	3	4	5
40. I try to learn from my mistakes.....	1	2	3	4	5
41. I accept physical expressions of affection from those who care about me.....	1	2	3	4	5
42. When I <u>think</u> someone is angry, I check with the person to see if he/she really is angry.....	1	2	3	4	5
43. I have regular conversations with the people I live with to solve house-hold issues, such as chores, food, money, etc.....	1	2	3	4	5

General Self-Care Habits (continued)	Never	Rarely	Sometimes	Usually	Always
44. I compliment myself when I do a good job....	1	2	3	4	5
45. I arrange my living environment (for example home, apartment, or room) so that it is pleasing to me.....	1	2	3	4	5
46. I accept verbal expressions of affection from those who care about me.....	1	2	3	4	5
47. When I feel like crying, I allow myself to cry if the situation is appropriate.....	1	2	3	4	5
48. I do something nice for myself at least once a week.....	1	2	3	4	5
49. I ask for what I need rather than waiting for others to meet my needs without my asking.....	1	2	3	4	5
50. When someone expresses anger toward me, I respond by trying to understand what that person is angry about.....	1	2	3	4	5
51. When I really want to refuse a request from someone, I do so.....	1	2	3	4	5
52. I am comfortable accepting compliments from people.....	1	2	3	4	5
53. The direction I am presently taking in my life is meaningful to me.....	1	2	3	4	5
54. I talk with someone at least once a week about things that are important to me.....	1	2	3	4	5
55. I receive hugs from someone who cares about me at least once a day.....	1	2	3	4	5
56. I plan time each week to spend with a person or persons I care about.....	1	2	3	4	5

General Self-Care Habits (continued)	Never	Rarely	Sometimes	Usually	Always
In the past month, how often have you had a relative (such as a parent, brother, sister, spouse or in-law, etc.) available to you by phone or in person?					
57. Who respects and values you?	1	2	3	4	5
58. Who usually understands how you feel?	1	2	3	4	5
59. Who loves and cares about you?	1	2	3	4	5
60. With whom you feel comfortable crying?	1	2	3	4	5
In the past month, how often have you had a friend (not a relative) available to you by phone or in person?					
61. Who respects and values you?	1	2	3	4	5
62. Who usually understands how you feel?	1	2	3	4	5
63. Who loves and cares about you?	1	2	3	4	5
64. With whom you feel comfortable crying?	1	2	3	4	5
In the past month, how often have you used each of the following as a source of support?					
65. A group of which you are a member?	1	2	3	4	5
66. A pet?	1	2	3	4	5
67. Nature or the out-of-doors?	1	2	3	4	5
68. One or more of the fine arts (for example, music or dance)?	1	2	3	4	5
69. Spiritual resources (such as talk with rabbi, priest, pastor, or read scriptures?	1	2	3	4	5

APPENDIX G

This section asks you to indicate how frequently you personally engage in selected health behaviors. For each item place an "X" in the most appropriate blank under each behavior to indicate how often <u>you actually</u> engage in that particular behavior.

1. Discuss health with friends, neighbors, relatives.
   Very frequently____:____:____:____:____:____:____Never

2. See a doctor for a regular check-up.
   Very frequently____:____:____:____:____:____:____Never

3. Get enough sleep.
   Very frequently____:____:____:____:____:____:____Never

4. Get enough exercise.
   Very frequently____:____:____:____:____:____:____Never

5. Avoid parts of the city with a lot of crime.
   Very frequently____:____:____:____:____:____:____Never

6. Check condition of electrical appliances, the car, etc.
   Very frequently____:____:____:____:____:____:____Never

7. Do things in moderation.
   Very frequently____:____:____:____:____:____:____Never

8. Use dental floss.
   Very frequently____:____:____:____:____:____:____Never

9. Avoid over-the-counter (non-prescription) medicines.
   Very frequently____:____:____:____:____:____:____Never

10. Spend free time out of doors.
    Very frequently____:____:____:____:____:____:____Never

11. Take vitamins.
    Very frequently____:____:____:____:____:____:____Never

12. Avoid contact with doctors when feeling okay.
    Very frequently____:____:____:____:____:____:____Never

13. Watch my weight.
    Very frequently____:____:____:____:____:____:____Never

14. Don't let things "get me down."
    Very frequently____:____:____:____:____:____:____Never

15. Avoid getting chilled.
    Very frequently____:____:____:____:____:____:____Never

16. Don't drink alcoholic beverages.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

17. Eat sensibly.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

18. Keep emergency phone numbers near the phone.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

19. Fix broken things around the home right away.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

20. Avoid overworking.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

21. Destroy old or unused medicines.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

22. Have a first aid kit in home.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

23. Don't smoke.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

24. Pray or live by the principles of religion.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

25. Get enough relaxation.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

26. Limit foods like sugar, coffee, fats, etc.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

27. See a dentist for a regular checkup.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

28. Avoid parts of the city with a lot of pollution.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

29. Wear a seat belt when in the car.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

30. Ignore health advice from friends, neighbors, and relatives.
Very frequently_____:_____:_____:_____:_____:_____:_____Never

APPENDIX H

This section is divided into 10 personal health practice areas. Each area has a series of statements about related health practices.

Read each statement and circle <u>one</u> number next to the statement that <u>best</u> describes <u>how often</u> you do the health practice.

-If you <u>never</u> do the health practice, circle the number 1.

-If you <u>rarely</u> do the health practice, circle the number 2.

-If you <u>sometimes</u> do the health practice, circle the number 3.

-If you <u>usually</u> do the health practice, circle the number 4.

-If you <u>always</u> do the health practice, circle the number 5.

<u>Food Related Practices</u>	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
1. I have <u>at least two servings</u> (if over age 18) or <u>at least four servings</u> (if age is 13 to 18) of dairy products <u>every day</u>. {One serving = one 8 ounce glass of milk = 1 cup of yogurt = 2 cups of cottage cheese = 2 one inch square cheese cubes = 2 slices of processed cheese}	1	2	3	4	5
2. I have <u>at least three servings</u> of meat, poultry, fish, beans or a combination of them <u>every day</u>. {One serving = 2 ounces of meat, fish or poultry = 1 cup of cooked dry beans or peas = 1/4 cup of nuts.}	1	2	3	4	5
3. I have <u>at least five servings</u> of a combination of whole grain, enriched or fortified breads and cereals <u>every day</u>. {One serving = 1 slice of bread = 1/2 to 3/4 cup of pasta, rice or a cooked cereal such as oatmeal = 4 two inch square crackers}	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Food Related Practices Continued					
4. I have at least six servings of cooked or raw fruits and vegetables every day. (One serving = 1/2 cup of cooked or raw vegetables = 1/2 cup of canned fruit = 1/2 cup of juice = 1 piece of raw fruit)	1	2	3	4	5
5. I have at least one serving of carrots, dark green leafy vegetables, bok choy, sweet potato, winter squash, apricots, or broccoli every other day. (One serving = 1/2 cup)	1	2	3	4	5
6. I have at least one serving of green pepper, broccoli, potato, tomato, spinach, cabbage, green peas, strawberries or orange juice every day. (One serving = 1/2 cup of vegetables or strawberries = 4 ounces of orange juice)	1	2	3	4	5
7. I have at least one serving every day of black-eyed peas, pinto beans, chick peas, asparagus, mustard or collard greens, lima beans, broccoli, or peanuts. (One serving = 1/2 cup of vegetables = 1/4 cup peanuts)	1	2	3	4	5
8. I eat snacks such as cheese, crackers and/or bread, fruit or vegetables	1	2	3	4	5
9. I eat candy bars, cookies, doughnuts, pastries, pies, and cakes	1	2	3	4	5
10. I trim all visible fat from meat and remove the skin and fat from chicken and turkey before cooking or eating	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

Food Related Practices Continued	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
11. I eat butter, highly marbled meats (fat seen as lines throughout the meat), fried foods and salad dressings such as mayonnaise	1	2	3	4	5
12. I eat foods that are baked, broiled stir-fried, boiled, steamed or roasted on a rack	1	2	3	4	5
13. I snack in front of the television	1	2	3	4	5
14. I eat low-fat dairy products such as 2%, 1/2% or skimmed milk, low-fat cottage cheese, low-fat cheeses, low-fat yogurt, and low-fat ice cream	1	2	3	4	5
15. I eat fish such as tuna, sole, perch, catfish or salmon at least once a week	1	2	3	4	5
16. I eat poultry, such as chicken and turkey at least twice a week	1	2	3	4	5
17. I eat smoked fish, smoked cheese, or salt-cured ham, bacon, or sausage	1	2	3	4	5
18. I eat hot dogs, luncheon meats such as bologna, dill pickles, potato chips, corn chips, taco chips or pretzels	1	2	3	4	5
19. I drink regular cola, tea, or coffee	1	2	3	4	5
20. I drink about 8 glasses of liquid every day. (1 glass = 8 ounces)	1	2	3	4	5
21. I eat eggs, hard cheeses, such as cheddar, and whole milk	1	2	3	4	5
22. I eat pan fried and deep fried food, such as fried chicken, fish, French fries or hamburgers	1	2	3	4	5
23. I eat at least 2 or 3 planned meals a day	1	2	3	4	5
24. I add salt to my food at the table	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Food Related Practices Continued					
25. I eat pre-sweetened or sugar coated cereal, syrups or honey	1	2	3	4	5
26. I eat breakfast (at least fruit or juice and cereal or toast) every day	1	2	3	4	5
27. I read food labels for clues about the sugar, fat and sodium or salt content	1	2	3	4	5
28. I wash vegetables and fruits before eating them	1	2	3	4	5
29. I wash my hands before handling food	1	2	3	4	5
Dental Practices					
30. I brush my teeth after meals and snacks	1	2	3	4	5
31. I brush my teeth at least once a day	1	2	3	4	5
32. I have a dental check-up or my teeth cleaned at least twice a year	1	2	3	4	5
33. I floss my teeth once a day	1	2	3	4	5
34. I use a stimudent, tooth pick, water pick or dental stimulator once a day	1	2	3	4	5
35. I use a fluoride toothpaste	1	2	3	4	5
36. I use a soft toothbrush	1	2	3	4	5
37. I rinse my mouth out with water after eating if I am unable to brush my teeth	1	2	3	4	5
Sleep and Rest Practices					
38. I sleep continuously for 8 to 10 hours (if age 13 to 18) or 6 to 8 hours (if over age 18) in every 24 hour day	1	2	3	4	5
39. I have a quiet time for myself each day	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Sleep Practices Continued					
40. I go to sleep at about the same time each day	1	2	3	4	5
41. I get up about the same time each day	1	2	3	4	5
42. I follow a bedtime routine, such as washing, brushing teeth and reading, before going to sleep	1	2	3	4	5
43. I follow a wake-up routine, such as washing, dressing and having breakfast, after sleeping	1	2	3	4	5
44. I have about 15 to 30 minutes of quiet activities before going to sleep	1	2	3	4	5
Exercise and Fitness Practices					
45. I participate in a planned aerobic exercise program, such as jogging, bicycling, brisk walking or swimming, at my home, office, school or gym	1	2	3	4	5
46. I do warm-up exercises, including stretching, for 5 to 10 minutes before doing the exercise	1	2	4	4	5
47. I do non-stop light to moderate aerobic exercise, such as jogging, bicycling, brisk walking, or swimming for 30 to 40 minutes 3 times a week	1	2	3	4	5
48. I do cool-down exercises similar to the warm-up exercises for 5 to 10 minutes after doing the non-stop aerobic exercise	1	2	3	4	5
49. I walk up stairs rather than use the elevator	1	2	3	4	5
50. I maintain good posture when sitting or standing	1	2	3	4	5
51. I participate in group or individual sports regularly	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

Recreational Practices	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
52. I follow the suggested safety rules when doing a sport	1	2	3	4	5
53. I wear/use the suggested or required safety equipment for sport activities, such as a helmet when riding a bicycle or shin guards when playing soccer	1	2	3	4	5
54. I operate a three wheeler, all terrain vehicle (ATV), snowmobile, or motorboat	1	2	3	4	5
55. I ride with drivers of all terrain vehicles (ATV), snowmobiles or motorboats who have been using drugs or alcohol	1	2	3	4	5
56. I have reflectors on my bicycle or use light-colored or reflective clothing when walking, jogging or biking after dark	1	2	3	4	5
57. I check recreational vehicles I use, such as a bicycle, three wheeler or all terrain vehicles, to make make sure they're safe and running properly	1	2	3	4	5
58. I walk or jog on a road or street with the flow of traffic	1	2	3	4	5
59. I can swim or stay afloat for at least 20 minutes in water that is over my head	1	2	3	4	5
60. I use the "buddy system" when swimming	1	2	3	4	5
61. I know the depth of the water and location of obstacles before entering pools, rivers and lakes	1	2	3	4	5
62. I ride a bicycle during high traffic times	1	2	3	4	5
63. I follow traffic rules when riding a bicycle or using other recreational vehicles, such as a three wheeler or all terrain vehicle, a snowmobile or motorboat	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Automotive and Pedestrian Practices					
64. I operate a three wheeler, an all terrain vehicle (ATV), a snowmobile or a motorboat while under the influence of alcohol or drugs	1	2	3	4	5
65. I check automotive vehicles I use, such as the car, truck, motorcycle, moped, to make sure they're safe and running properly	1	2	3	4	5
66. I hitchhike or pick up a hitchhiker	1	2	3	4	5
67. I ride with drivers of cars, trucks, mopeds or motorcycles who have been using drugs or alcohol	1	2	3	4	5
68. I follow traffic rules when driving a car, truck, moped, or motorcycle	1	2	3	4	5
69. I use seatbelts when riding in or driving a car	1	2	3	4	5
70. I drive a car, truck, motorcycle, or moped when under the influence of drugs or alcohol	1	2	3	4	5
71. I accept a ride only from someone I know	1	2	3	4	5
72. I cross streets with the "walk" sign, green light, and at cross walks	1	2	3	4	5
73. I cross between parked cars	1	2	3	4	5
Household and Related Practices					
74. I practice a fire drill procedure at home	1	2	3	4	5
75. I review common emergency procedures, such as those for cuts, burns, bleeding and choking at least two times a year	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

Household and Related Practices Continued	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
76. I have emergency phone numbers, such as police, fire, poison control center and doctor, posted by the phone	1	2	3	4	5
77. I answer the phone with the family name, such as "This is the Jones's residence."	1	2	3	4	5
78. I read the labels of household products, such as cleansers, paints and poisons before I use them	1	2	3	4	5
79. I follow the safety instructions when using these household products	1	2	3	4	5
80. I put deadly substances, such as paints, medicines and drugs, and cleaners on high shelves or in a locked cabinet	1	2	3	4	5
81. I keep medicines and drugs in an area separate from the kitchen and food	1	2	3	4	5
82. I give information about people who are not at home to unknown telephone callers	1	2	3	4	5
83. I read the directions for using electrical appliances and devices before using them	1	2	3	4	5
84. I dry my hands before using electrical appliances	1	2	3	4	5
85. I check for household safety hazards, such as damaged or frayed lamp and appliance cords	1	2	3	4	5
86. I cut towards myself when using a knife	1	2	3	4	5
87. I keep hallways and stairs free from clutter, such as toys or clothing	1	2	3	4	5
88. I look for signs of bulging or rounded swelling of jar and can ends before opening them	1	2	3	4	5
89. I keep the doors of my house or apartment locked when home alone	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Household and Related Practices Continued					
90. I discard jars and cans which have bulging ends or rounding swelling, spurting, leaks, punctures, or "off" odors	1	2	3	4	5
91. I am able to get to and handle guns in my home	1	2	3	4	5
92. I throw out drugs which are past the date of suggested use	1	2	3	4	5
93. I store food in airtight containers in the refrigerator	1	2	3	4	5
Stress Reduction Practices					
94. I meditate or pray when I have a problem, feel tense or am anxious	1	2	3	4	5
95. I try to relax by doing an activity I like, such as playing a musical instrument, sewing, playing cards, reading, going to a movie, or watching TV	1	2	3	4	5
96. I eat more food when I feel anxious or tense	1	2	3	4	5
97. I tighten and relax the muscles in my body, such as my toes, feet, legs, shoulders and/or neck when I feel stressed	1	2	3	4	5
98. I take several slow deep breaths in and out when I feel stressed	1	2	3	4	5
99. I talk things over with a person I can trust when I have a problem	1	2	3	4	5
100. I think about different ways to handle my problem	1	2	3	4	5
101. I exercise when I feel tense or anxious	1	2	3	4	5
102. I take drugs or alcohol to forget about a problem	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Stress Reduction Practices Continued					
103. I set goals for myself which I can achieve	1	2	3	4	5
104. I make workable plans to reach my goals	1	2	3	4	5
105. I compliment myself when I go a good job	1	2	3	4	5
106. I think about suicide as a way to deal with a problem	1	2	3	4	5
107. I think about how I will respond to a situation before it occurs, such as accepting or refusing a ride from a person who is under the influence of drugs or alcohol	1	2	3	4	5
108. I do something nice for myself at least once a week	1	2	3	4	5
109. I plan time each week to spend with people I care about	1	2	3	4	5
Substance Use Practices					
110. I drink alcoholic beverages, such as beer, wine, or liquor	1	2	3	4	5
111. I drink more than 2 ounces of liquor, or 10 ounces of beer or 5 ounces of table wine every day	1	2	3	4	5
112. I ask for information about drugs the doctor tells me to take, such as the name, purpose, when and how to take it	1	2	3	4	5
113. I use "street drugs" such as hashish, cocaine, angel dust or other illegal drugs	1	2	3	4	5
114. I sniff glue or solvent, such as airplaine glue, gasoline, or nail polish	1	2	3	4	5
115. I follow the instructions provided with any drugs I take	1	2	3	4	5
116. I smoke cigarettes	1	2	3	4	5

Read each statement and circle the number next to the statement that best describes how often you do the health practice.

	NEVER	RARELY	SOMETIMES	USUALLY	ALWAYS
Substance Use Practices					
117. I use smokeless or chewing tobacco	1	2	3	4	5
118. I smoke in bed	1	2	3	4	5
119. I use drugs which the doctor has prescribed for other members of my family	1	2	3	4	5
Personal Care Practices					
120. I apply a sunscreen or sunblocking product to my skin when working or playing outdoors	1	2	3	4	5
121. I wash my hands after using the bathroom	1	2	3	4	5
122. I wash, bathe, or shower daily	1	2	3	4	5
123. I share personal items with others, such as my comb or brush, hat or scarf, or cosmetics	1	2	3	4	5
124. I wear clothing that is right for the weather, such as a hat or scarf to cover my head in cold weather	1	2	3	4	5
125. I examine my breasts (if a female) or my testicles (if a male) once each month	1	2	3	4	5
126. I keep a current record of the immunizations, such as measles, tetanus, and polio shots, I have had	1	2	3	4	5
127. I have my blood pressure checked at least once a year	1	2	3	4	5

APPENDIX I

This section contains a number of statements about families. Please read each statement carefully, and decide how well it describes your own family. You should answer according to how you see your family.

For each statement there are four (4) possible responses:

Strongly Agree	Check "Strongly Agree "if you feel that the statement describes your family very accurately.
Agree	Check "Agree" if you feel that the statement describes your family for the most part.
Disagree	Check "Disagree" if you feel that the statement does not describe your family for the most part.
Strongly Disagree	Check "Strongly Disagree" if you feel that the statement does not describe your family at all.

1. Planning family activities is difficult because we misunderstand each other.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

2. In times of crisis we can turn to each other for support.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

3. We cannot talk to each other about the sadness we feel.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

4. Individuals are accepted for what they are.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

5. We avoid discussing our fears and concerns.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

6. We can express feelings to each other.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

7. There are lots of bad feelings in the family.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

8. We feel accepted for what we are.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

9. Making decisions is a problem for our family.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

10. We are able to make decisions about how to solve problems.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

11. We don't get along well together.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

12. We confide in each other.

___ Strongly Agree ___ Agree ___ Disagree ___ Strongly Disagree

APPENDIX J

This section asks for information about yourself and your family. Circle the number next to the word which best describes you or insert the information requested.

1. What is your birthdate?

_____	_____	_____
month	day	year

2. What is your sex?

Male.....1
Female.....2

3. What is your current marital status?

Married.....1
Divorced.....2
Widowed.....3
Separated.....4
Never married.....5
Other.....6
(Specify) _____

4. What is your ethnic origin or descent?

White not Hispanic....1
Black not Hispanic....2
Hispanic.....3
Asian.....4
Pacific Islander.....5
American Indian.....6
Other.....7
(Specify)_____

5. Which of the following best describes your religious preference?

Catholic.....1
Protestant.....2
Jewish.....3
Other.....4
(Specify)_____

6. How often have you attended religious services or functions during the past five weeks?

None.....1
Once.....2
Twice.....3
Three times.....4
Four times.....5
Five times.....6
More than five times.7

7. What is the last year of school you completed?

Kindergarten..1	Ninth grade.....9	Fifth year of college...17
First grade...2	Tenth grade.....10	Sixth year of college...18
Second grade..3	Eleventh grade.....11	Seventh year of college.19
Third grade...4	Twelth grade.....12	Technical school.....20
Fourth grade..5	First year of college...13	(Specify years completed) _____
Sixth grade...6	Second year of college..14	
Seventh grade.7	Third year of college...15	Other.....21
Eighth grade..8	Fourth year of college..16	(Specify) _____

8. What is your current employment status? (Circle all that apply.)

Self-employed full-time.....1
Self-employed part-time.....2
Employed by other full-time.....3
Employed by other part-time.....4
Unemployed.....5
Student full-time.....6
Student part-time.....7
Other.....8
(Specify) _____

9. What is your current occupation? Please give your current position (for example dentist, typist, housewife, or student) and a brief description of your activities.

_____
_____
_____
_____

10. In general, how would you describe your overall health?

Excellent.....1
Very good.....2
Good.....3
Fair.....4
Poor.....5

11. Do you have a long-term impairment or health problem?

No.....1
Yes.....2
If yes, please describe briefly:

_____
_____
_____

12. About how much do you currently weigh without shoes?

_____
Number of Pounds

13. About how tall are you without shoes?

_____ _____
Feet Inches

14. Including yourself, how many people are living with you at your current address?

Two.....1
Three.....2
Four.....3
Five.....4
Six.....5
Seven.....6
Eight.....7
Nine or more...8

15. Describe each person by giving their age and their relationship to you, for example, mother - 34, sister - 5.

Relationship	Age

16. Which of the following best describes your family's income from all sources before taxes for 1988?

Less than $10,000....1	$55,001 to $60,000...11
$10,001 to $15,000....2	$60,001 to $65,000...12
$15,001 to $20,000....3	$65,001 to $70,000...13
$20,001 to $25,000....4	$70,001 to $75,000...14
$25,001 to $30,000....5	$75,001 to $80,000...15
$30,001 to $35,000....6	$80,001 to $85,000...16
$35,001 to $40,000....7	$85,001 to $90,000...17
$40,001 to $45,000....8	$90,001 to $95,000...18
$45,001 to $50,000....9	$95,001 to $100,000...19
$50,001 to $55,000...10	More than $100,001...20

APPENDIX K

Pearson Product Moment Correlation Coefficients on the Major Variables between the Subsamples of Adolescents, Fathers, and Mothers.

Major Variables	Pearson Product Moment Correlation Coefficients by Subsamples		
	Adolescents@ & Fathers@	Adolescents# & Mothers#	Fathers@ & Mothers@
HSDI*	.18 (p=.082)	.23 (p=.026)	.42 (p=.000)
FAD-7*	.20 (p=.059)	.31 (p=.004)	.42 (p=.000)
SCI*	.04 (p=.387)	.00 (p=.486)	.12 (p=.185)
HPBQ-Part 2*	.20 (p=.069)	.11 (p=.188)	.27 (p=.017)
HPS*	.27 (p=.018)	.15 (p=.097)	.22 (p=.049)
WI$	.21 (p=.060)	.14 (p=.112)	.17 (p=.100)

@ n=60
# n=73
* Pearson coefficients of total scale means
$ Pearson coefficients of the one item responses

Pearson Product Moment Correlation Coefficients of Subscale Means on the HPS between the Subsamples of Adolescents, Fathers, and Mothers.

HPS Subscales	Pearson Product Moment Correlation Coefficients of Subscale Means between Subsamples		
	Adolescents@ & Fathers@	Adolescents# & Mothers#	Fathers@ & & Mothers@
Automotive & Pedestrian Practices	.03 (p=.398)	.11 (p=.176)	.33 (p=.005)
Dental Practices	.34 (p=.004)	.29 (p=.007)	.44 (p=.000)
Exercise & Fitness Practices	.06 (p=.327)	.18 (p=.071)	.45 (p=.000)
Food Related Practices	.44 (p=.000)	.30 (p=.005)	.46 (p=.000)
Household & Related Practices	.32 (p=.006)	.19 (p=.051)	.33 (p=.005)
Personal Care Practices	.23 (p=.040)	.22 (p=.031)	.24 (p=.032)
Recreational Practices	.26 (p=.024)	.09 (p=.215)	-.17 (p=.449)
Sleep & Rest Practices	.17 (p=.096)	.07 (p=.275)	.27 (p=.019)
Stress Reduction Practices	-.16 (p=.115)	.23 (p=.024)	.03 (p=.397)
Substance Use Practices	.09 (p=.253)	-.07 (p=.272)	.38 (p=.001)

@ n=60
# n=73

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