**THE RELATIONSHIPS AMONG MOTHER'S RESILIENCE, FAMILY
HEALTH WORK, AND MOTHER'S HEALTH-PROMOTING LIFESTYLE
PRACTICES IN FAMILIES WITH PRE-SCHOOL CHILDREN**

by

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ABSTRACT

The purpose of this study was to test hypotheses derived from the Developmental Health Model (DHM) by examining the relationships among mothers' resilience (a dimension of health potential), family health work, and mothers' health-promoting lifestyle practices in families with pre-school children. In the DHM, it is proposed that family health potential (strengths, motivations, resources) positively influences the degree of family participation in health work, a process of active involvement in health-related problem-solving and goal attainment activities. The degree of participation in health work positively influences health outcomes, such as health-promoting lifestyle practices. The pre-school family was chosen as the study population because of its significance in impacting the present and future health status of its members (Duffy, 1988).

A convenience sample of 67 mothers of pre-school children was recruited from three nursery schools to participate in this study. Participants completed the Resilience Scale, which measures an individual's level of resilience (Wagnild & Young, 1993); the Health Options Scale, which measures the degree of family participation in health work (Ford-Gilboe, 1994, 1997); the Health-Promoting Lifestyle Profile II, a measure of individual health-promoting lifestyle practices (Walker, Sechrist, & Pender, 1987) and a demographic questionnaire, which provided information about personal and family characteristics such as mothers' age and employment status, family size, and family income.

Consistent with theoretical expectations, both mothers' resilience and family health work were positively related to mothers' health-promoting lifestyle practices. Mothers' resilience and health work were only weakly correlated, providing questionable support for the hypothesized relationship between these variables. Family income and mothers' educational level, employment status, and marital status were the only demographic variables related to any of the main study variables.

This study adds further support for the validity of the DHM by substantiating the influence of a dimension of health potential (mothers' resilience) and health work on mothers' health-promoting lifestyle practices, a health outcome, in families with pre-school children. Study findings provide direction for future theory refinement and testing and for the development and implementation of interventions that may enhance health-promoting lifestyle practices in families with pre-school children.

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DEDICATION

To my mother, Verda Gregory,
for providing, throughout my life, the physical, emotional, and
spiritual supports required for me to pursue my dreams.

To my father, Dr. Martin Humphrys,
whose spirit of determination and dedication to promoting health during his
his short life greatly influenced my personal and professional being.

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CHAPTER I

INTRODUCTION

Health promotion is a process of empowering people to take control over and improve their health (Ontario Ministry of Health, 1991; World Health Organization, 1985). Support for the aims of health promotion has risen dramatically in recent years. Within this context, the vital role which families play in promoting health of their members has been acknowledged (World Health Organization, 1986). This health promoting role is particularly important in pre-school families since health beliefs, attitudes, and practices are learned and become consistent at a very young age (Cohen, Felix, & Brownell, 1989; Donovan, Jessor, & Costa, 1991; Duffy, 1988; Gillis, 1994; Gottlieb & Rowat, 1987; Warner, 1981). However, few studies have examined the process of health promotion in families (Duffy, 1988). In order to foster health promotion in families, an understanding of factors that contribute to the health promotion efforts of families is needed. Knowledge of these factors would provide a basis for developing programs and services that facilitate healthy living for families.

Nurses are poised to take a leadership role in promoting the health of individuals, families, and communities (World Health Organization, 1985; Canadian Nurses Association, 1992). In assuming this leadership role, a health promotion theoretical framework should be used that focuses on promoting family capacity and health activity which, in turn, influence family health outcomes. The Developmental Health Model, a theoretical nursing model, provides a framework for promoting health

in families. In this model, relationships between health capacity (health potential), health activity (health work), and a number of health outcomes, including healthy lifestyle practices are proposed. The model serves as a means for understanding how the health potential of families - strengths, motivations, and resources - contribute to their participation in health work - a process of active involvement in problem-solving and goal attainment activities - through which, families develop healthy ways of living (Allen, 1989; Gottlieb, 1981; Kravitz & Frey, 1989). Nursing practice based on this model facilitates family health promoting behaviour by drawing upon and, thereby, fostering the development of family health potential and health work. (Allen, Frasure-Smith & Gottlieb, 1980; Gottlieb, 1981; Pless, Feeley, Gottlieb, Rowat, Dougherty & Willard, 1994). Health work and healthy lifestyle behaviours resulting from participating in this process would be enhanced if the family strengths, motivations, and resources that facilitate health work were identified, and interventions to develop or enhance these capabilities implemented prior to the occurrence of life events that strain the coping abilities of families.

One strength that may facilitate the process of health work, and, ultimately, promote healthy lifestyles, is the personality characteristic of resilience. Resilience has been identified as an individual strength that promotes successful adaptation despite adversity (Cicchetti & Garmezy, 1993). Much of this body of research has focused on describing the characteristics of resilient individuals and the factors that promote the development of resilience and reduce the likelihood of dysfunction in the presence of stressful life experiences (Garmezy, 1991; Gore & Eckenrode, 1994; Kadner, 1989; Resnick, Harris, & Blum, 1991; Spaccarelli & Kim, 1995; Wagnild & Young, 1990;

Werner & Smith, 1992). No studies have examined the characteristics and determinants of family resilience.

The family, as a primary socializer of health behaviours and beliefs, is responsible for the development of health-promoting or health-damaging lifestyles in its members (Pender, 1996). Beliefs and attitudes about health and participation in health-promoting behaviours are formed early in one's life, particularly in the pre-school period (Duffy, 1988). The acquisition of these beliefs and attitudes are strongly influenced by mothers, who are the health leaders in families. Unfortunately, the number of studies that have examined health promotion in the family is very limited. Duffy (1988) reviewed 105 issues of four major nursing journals and found five articles which addressed this issue. Further, in no studies has the relationship between resilience and family health behaviours been examined.

However, in a recent survey of community dwelling older adults ($N = 776$), Wagnild (1997) found that participants who reported better health status and greater resilience were more likely to practice healthy lifestyle behaviours. These findings support the hypothesis that resilience is positively related to health-promoting outcomes such as practising a healthy lifestyle. In a study examining health promotion behaviour of single-parent and two-parent families with pre-adolescent children ($N = 138$), Ford-Gilboe (1994) found a moderate correlation ($r = .52$) between family health work and mothers' healthy lifestyle practices. However, the relationships among resilience, health work, and healthy lifestyle practices in families with pre-school children have not been previously investigated.

The purpose of this study was to examine the relationships among mother's

resilience, family health work, and mother's health-promoting life-style practices in families with pre-school children. If resilience, health work, and health-promoting lifestyle practices are positively correlated, these findings will support the development of interventions that promote resilience in family members as a health promoting strategy. This study continues the process of developing knowledge about a critical but poorly understood phenomenon - family health promotion - in a population where there is tremendous potential to impact the present and future health status of both parents and children. By examining relationships among key concepts in the DHM that form the foundation for nursing practice, study results may be useful in helping to shape nursing practice guided by this model.

This report is divided into five chapters. The first chapter introduces the study. The second chapter includes an overview of the Developmental Health Model, including a review of related empirical literature, and descriptions of relationships among salient concepts of the model: health, family, health potential, health work and nursing. Theoretical and empirical literature related to resilience, as a component of health potential, and health-promoting lifestyle practices, an outcome of health promotion and maintenance processes, is presented.

In the third chapter, the research methods, including sample, setting, instruments used in the study, and the research procedure are described. The study results are presented in the fourth chapter, followed by a discussion of the findings, implications for nursing practice, and recommendations for further research in the fifth chapter. A summary and conclusions complete the report.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter begins with an overview of the Developmental Health Model and a description of the nursing research that has refined and developed the model.

Subsequently, the chapter describes and supports with empirical literature, the concept of resilience as a component of health potential, and health-promoting lifestyle as an outcome of health potential and health work. The chapter concludes with a statement of the research hypotheses and the research question.

The Developmental Health Model

The theoretical basis for this study is derived from Allen's (1983) Developmental Health Model. The Developmental Health Model (DHM), also named the McGill Model and the Allen Model, has evolved over the past 30 years (Kravitz & Frey, 1989). The elements of the model were initially identified, tested, and elaborated in practice and through discussion by Dr. Moyra Allen and her associates at McGill University (Allen, 1983; Gottlieb & Rowat, 1987). This model was initially developed as a "means of generating, rather than defining, a knowledge base for nursing" (Kravitz & Frey, 1989, p 313). Recently, efforts to define and refine concepts and relationships in the model have been undertaken (Ford-Gilboe, 1994). The development of the Health Options Scale (HOS) (Ford-Gilboe, 1994), which measures the degree of participation in health work, is one of the initial steps in testing hypotheses derived from this model. The salient concepts of the model include: health, family, health

potential, and health work. These concepts are inter-related through general systems and social learning theory. Figure 1 is a model depicting the relationships among the concepts which form the basis of Developmental Health Model.

Family

The DHM identifies the family as the unit of concern (Allen, 1983; Gottlieb & Rowat, 1987). Membership in the family is individually defined. The family is viewed from a systems perspective, with consideration of the continuous interaction and influence of individuals within the family, the family as a whole, and the broader social systems. Hence, the individual family member is always viewed from the perspective of the family, since the solutions to problems reside within the family.

Health

The DHM defines health as a dynamic, multidimensional construct incorporating a number of processes, not as a state or end point (Gottlieb & Rowat, 1987). Two of the most important attributes of health are coping (problem-solving) and development (growth seeking/goal attainment). Health is viewed as a continuous process that includes coping and development activity as its content, learning as the instrument of change, and 'becoming' as its outcome (Allen, 1981; Warner, 1981). Although the process of developing health is emphasized, at any point in time, the health of an individual family is reflected by the sum total of their coping skills and growth seeking behaviours (Allen, 1990). Health and illness are viewed as separate entities that coexist. Illness is not ignored, but considered to be one of the life events that families encounter (Kravitz & Frey, 1989). Life events, including illness, are viewed as opportunities to expand the family's coping and development capabilities.

Figure 1. Proposed Antecedents and Consequences of Health Work
(working model)

These capabilities include the family's health potential and the process intrinsic to coping and development, health work (Ford-Gilboe, 1994).

Health Work

Allen (1983) describes health work as a process of active involvement in which families engage in and learn ways of coping and developing that are conducive to healthy living. Coping is facilitated by creating an environment and a structure that promotes involvement in a process of health-related problem-solving. The developmental aspect of health work, a growth-seeking/goal attainment process, is composed of three activities; calling forth potential, creating resources, and taking aim (Warner, 1981). Calling forth potential includes recognizing and using personal abilities and strengths. Creating resources consists of mobilizing and regulating the flow of external resources that support family health activities. Taking aim involves setting goals that incorporate resolution of current health situations and promote family growth.

The degree of participation in health work can be appraised by the number and quality of problem-solving and goal-oriented activities demonstrated by a family at a particular point in time (Allen, 1990). When visualized on a continuum, as the degree of health work increases, the family increases their active experimentation in ways of coping and developing, and makes conscious choices to seek healthier ways of living (Ford-Gilboe, 1994). For example, families that demonstrate higher degrees of health work continuously look for ways to improve their health, work toward specific family health goals, and consider all options before making decisions that will affect their health, while families that demonstrate lower degrees of health work make no conscious

plans to improve family health, have difficulty following through with health-promoting lifestyle changes, and provide minimal support for family members who are attempting to change their health practices (Ford-Gilboe, 1994).

"The degree to which a family participates in health work is influenced by the health potential of that family" (Ford-Gilboe, 1994, p 2). The greater the health potential of the family, the greater the family's level of health work. In promoting family health, the nurse tailors her interventions to the family's level of health work, and health potential. Participation in health work can be measured by the Health Options Scale (HOS), but further research is required to identify and measure the outcomes of health work and the specific family strengths, motivations and resources that influence health work.

Health Potential

Health potential is defined in the Developmental Health Model as family strengths, motivation, and resources (Ford-Gilboe, 1994). These various aspects of health potential assist families in undertaking health work, thereby maintaining or promoting health by enhancing the families efforts to cope with life events and achieve their goals (Allen, 1990). Family strengths are points of stability or flexibility within the family system (Allen, 1983). These family strengths could include but are not exclusive to resilience, cohesion, or optimism (Ford-Gilboe, 1994). Family motivation refers to the families' interest, desire, or belief in their ability, to influence their health. (Allen, 1983). Internal health locus of control, self-efficacy and family values are examples of motivational factors influencing family health promotion (Ford-Gilboe, 1994). Finally, family resources consist of external assistance available to families and

may include books, journals, films, health experts, other families or individuals with similar concerns, economic sufficiency, or government agencies (Allen, 1983, 1990). One nursing role is to assist families in the identification and mobilization of these enabling qualities. As families participate in health work, some aspects of the family's health potential assist in the health work process, while others are fostered and further developed as the family effectively copes with life events and creates new avenues for goal achievement and development.

Nursing

Situation-responsive nursing is a central component of this model's approach to promoting health in families. Situation-responsive nursing functions in a complementary role with other health professionals, as opposed to an assistant-to-the physician or replacement of the physician nursing role (Kravitz 1981; MacKenzie, 1981).

In both the assistant-to or replacement-of the physician approaches to nursing, the unit of care is the individual and the focus is preventative, curative, or rehabilitative care for a specific episodic disease. The nurse either independently, or at the direction of the physician, bases her assessments, problem identification, interventions, and evaluation on a wide body of prior medical knowledge. The nurse uses her "a priori" knowledge to identify and collect a limited spectrum of assessment data. Based on this assessment data, a diagnosis is determined and a pre-determined plan of care is initiated.

Nurses, practising from a situation-responsive approach, function in a complementary role with other health professionals. In assuming this complementary role, nurses are filling a gap in health services by assisting families in developing ways of

dealing with everyday situations in a health-promoting fashion (Allen, 1977). Situation-responsive nursing focuses on the family, not the individual (Kravitz & Frey, 1989). Even when dealing with individuals, the nurse views the individual in relation to their family. The nurse-family relationship, in this style of nursing, has been described as a partnership - reciprocal, complementary, and collaborative in nature (Allen, 1977, 1989, 1990; Feeley & Gerez-Lirette, 1992; Gilchrist & Allen, 1981; Gottlieb & Rowat, 1987). Using an exploratory approach to gathering data, drawing on information from the individual/family, other sources, and her own observations and knowledge, the nurse develops an explanatory framework for the specific family health situation. The nurse works with the family, through the process of health work, to identify the nature of the health situation experienced by the family. In addition the nurse identifies with the family, their current problem-solving and growth seeking behaviours, learning styles, strengths, resources, and motivation for health work (Allen, 1989, 1990; Feeley & Gerez-Lirette, 1992).

The information gathered from these various sources is used by the nurse in structuring a supportive learning environment for engaging in the process of health work with the family, in a manner that is congruent with the family's goals and health potential (Feeley & Gerez-Lirette, 1992). Engagement in health work assists families in actively participating in developing their own capacities for healthy living, while gaining some control over their health, and accepting health as a responsibility (Gottlieb & Rowat, 1987). Therefore, the focus must be on the "process" not the "content" of the solution. As a result, "the family learns a way of being healthy which develops and is responsive to situations over time" (Allen, 1981, p 153).

Research Utilizing the Developmental Health Model

The DHM evolved from descriptive studies of nursing practice at McGill University (Gottlieb & Rowat, 1987). Using a grounded theory approach, the critical elements of the model began to emerge. In an attempt to prevent premature closure of research exploring the model, Allen deliberately avoided operationalizing the model's concepts (Kravitz & Frey, 1989). Much of the research concerning the Developmental Health Model is unpublished. The limited published research that is available was conducted mainly by faculty at McGill University. This research has focused primarily on describing nursing practice within this model and identifying client-outcomes associated with situation-responsive nursing.

Several early studies examined the practice of nurses as they worked with families on health issues. Allen, Frasure-Smith, and Gottlieb (1980), in comparing situation-responsive nursing practice based on the DHM to nursing based on two other models of nursing care, identified distinct differences in nursing practice. In an exploratory study, Gottlieb (1981) analyzed data from previous studies and interviews in order to further describe this nursing approach. The results indicated that some nurses structured goal-oriented learning experiences directed at meeting the unique needs and problem-solving styles of the family. Nursing interventions were aimed at changing or strengthening the client's ways of dealing with health-related situations. These nurses facilitated the coping and development activity of the family by drawing upon and, thereby, fostering, the development of the family's health potential and problem solving and goal-setting abilities. This style of nursing was labelled "situation-responsive" and became the foundation for practice guided by the DHM.

A few studies have examined outcomes of situation-responsive nursing. A study by Allen, Frasure-Smith, and Gottlieb (1980) compared outcomes for families ($N=330$) attending three different family medicine units. Nurses from one unit used a situation-responsive approach while nurses from the other units used an "a priori" approach based on the medical model - emphasizing the illness, patient deficits, and an individual focus to care. The findings indicated that families perceived that they received help for more health problems from the nurses who used a situation-responsive approach when compared to those practising from a "a priori" or medical perspective. Of the 135 patients, 59 receiving situation-responsive nursing indicated that they received help for a life change problem, as opposed to 22 out of 84 patients, and 20 out of 111 patients for the sites based on the medical model, $\chi^2 (2, N = 330) = 19.86, p < .05$.

Pless, Feeley, Gottlieb, Rowat, Dougherty & Willard (1994) conducted a study to determine whether nursing, practised from the perspective of the DHM, could help prevent or reduce psychosocial maladjustment among chronically ill children. This study used a quasi-experimental design, with the intervention group receiving the family health promoting nursing advocated by the DHM, and the control group receiving the usual "a priori" nursing care. The nursing intervention was aimed at fostering a healthy family environment which in turn would have a positive impact on the psychosocial functioning of the child. A convenience sample of 469 children who met the eligibility criteria were identified from nine specialty clinics. A total of 332 children (71 %) consented to participate in the study. The children and their families were stratified by clinic and randomly assigned to either the intervention ($n=171$) or control ($n=161$) group. At baseline, intervention and control groups were similar with

respect to child and family demographic characteristics. Within each clinic, intervention families were further randomized to one of three nurses who provided supplementary health promotion nursing services. The control group continued to receive routine nursing services. Three aspects of the child's psychosocial functioning were assessed pre-intervention and after a 1-year intervention. The aspects of psychological functioning assessed included: behavioural problems, child adjustment and role performance, and self-worth. Of the 332 families initially enrolled, the final analysis of data included only 267 families due to attrition and elimination of families in which different respondents completed the study instruments at each data collection point.

A one-way analysis of covariance was used to test the hypothesis that the intervention was effective in either reducing or preventing maladjustment, with group (intervention versus control) as the independent variable, and baseline scores on each of the child outcome measures as covariates. The investigators report group means and identify significant differences but fail to specify the magnitude of the F statistic for each group. Post intervention, children in the intervention group had better psychosocial adjustment (less dependent, less anxious and depressed) than children in the control group. No significant group effects were found for behavioural problems post intervention. Younger children (4-7 years) in the intervention group perceived themselves to be less accepted by peers than children of the same age in the control group. However, older children (8-16 years) in the intervention group perceived themselves to be more academically competent, better behaved, and had a higher global self-worth than their counterparts in the control group.

One limitation of the study was sample bias arising from the candidates who refused to participate. There were significant differences between study participants and those who refused to take part in the areas of language, age, and diagnostic group. This limits the generalizability of the findings. Another limitation is the adequacy of the measurement instruments. The measurement instrument used to identify behavioural problems was developed to identify psychopathology and the investigators expressed concern that children with chronic illnesses may score high on this measurement instrument due to pathophysiological problems rather than psychological disturbance. This may explain the fact that no significant group effects were identified for behavioural problems following the intervention.

Despite these limitations, study findings provide support for the effectiveness of nursing intervention based on the DHM in preventing psychosocial maladjustment in children with chronic disorders. This study, along with the other two cited, support the positive outcomes that may transpire when nursing is practised from a health (potential) rather than an illness (deficit) focus. This study also illustrates the necessity of developing instruments that measure the health promoting constructs of the DHM, such as health potential and health work, so that changes in these dimensions could be measured in future intervention studies.

Few studies have examined relationships between theoretical concepts in the developmental health model, although this has been identified as a critical step in further theory development (Gottlieb & Rowat, 1987). As part of a program of research aimed at developing knowledge about family health promotion, researchers at the University of Western Ontario are beginning to conduct studies in this area.

In the first of these studies, Ford-Gilboe (1994) examined the relationship between two concepts in the DHM, health potential and health work, in an economically diverse sample of families with pre-adolescent children ($N = 138$). The study investigated the extent to which family variables (pride, cohesion, network support, community support, income) and individual variables (mother's sex role orientation, internal health locus of control, general self-efficacy), selected as indicators of health potential, predicted health work in single-parent families headed by women compared to two-parent families (Ford-Gilboe, 1994). The mother and one child between the ages of 10 and 14 from each family completed questionnaires, consisting of several instruments used to capture the study variables. Semi-structured family interviews were conducted with a sub-sample of families ($n = 16$) during which study concepts were explored.

Because mother and child scores for the family variables of pride, cohesion, network support, community support, and choice of health options were moderately correlated ($r = .21-.55$), family scores were created for each of these variables by computing the mean of mother and child scores. Relationships among variables were analyzed using Pearson r correlations. The results revealed positive correlations between six of the eight variables representing health potential and health work. Family cohesion ($r = .44$), family pride ($r = .37$), non-traditional sex role orientation ($r = .28$), mother's self-efficacy ($r = .37$), network support ($r = .31$), and community support ($r = .20$) were all significantly related to health work ($p < .05$). No relationships were found between either mother's internal locus of control and health work or family income and health work. Only one demographic variable, mother's

education, was significantly correlated with health work ($r = .21, p = .02$). In hierarchical multiple regression analysis, mothers' education explained 4% of the variance in health work, $F(1, 132) = 5.76, p = .02$. Measures of health potential predicted an additional 22% of the variance in health work for the total sample, $F(9, 124) = 4.73, p = .0001$. Using backward elimination, two variables were found to significantly predicted 22% of the variance in health work. Family cohesion accounted for 13% of the variance, mother's sex role orientation represented 6%, and the combined influence of these two variables accounted for the remaining 3% of the variance, $F(2, 131) = 18.41, p = .0001$.

Study findings supported a positive relationship between health potential, particularly the family strengths of family cohesion and mother's sex role orientation, and family participation in health work. The role of the nurse, as espoused by the DHM, is to structure a learning environment which capitalizes on the family's existing strengths (Allen, 1989). The results of this study reinforce the need for nurses to identify, through research, additional components of health potential. In addition, nurses in practice settings must foster existing, and develop further, family potentials. Limitation of the study include the use of a convenience sample which limits generalizability; the use of a new instrument, the HOS, which had limited validity and reliability testing at the time of the study; and the inability to infer causation due to the use of a correlational design.

Research based on the DHM is limited. Early studies focused on describing the nursing role and, to a limited extent, family outcomes. Later studies have included more rigorous designs, and have further developed the model by refining concepts and

beginning to test relationships between the model's concepts. For theory refinement to occur, further research is required to test the relationships between concepts.

Identifying factors that influence and promote health work, such as the strength of resilience, is an important part of this process.

Resilience

In the psychosocial literature, human resilience is identified as a personality characteristic, protective factor, psychosocial resource, and intra-organismic force (Cicchetti & Garmezy, 1993; Emery & Forehand, 1994; Gore & Eckenrode, 1994; Heinzer, 1995; Kadner, 1989; Patterson, 1995; Wagnild & Young, 1990, 1993). These internal resources constitute a type of preparedness - a strength that is mobilized in the individual when a stressful situation occurs (Kadner, 1989). It is the mobilization of these resilient resources that facilitates adaptation despite adversity.

A number of studies have focused on describing the characteristics of resilient individuals and on identifying the factors that promote the development of resilience and reduce the likelihood of dysfunction and disorder in the presence of stressful life experiences (Garmezy, 1991; Gore & Eckenrode, 1994). Family resilience has not been previously studied although, in many instances, the influence of family factors on the resilience of individual family members has been examined.

Factors That Promote the Development of Resilience

Several familial and extra-familial factors that promote the development of resilience in children have been identified. Familial factors that promote the development of resilience include parents who set rules and respect their children's individuality (Werner & Smith, 1992) and a warm and supportive relationship with a

parent (Spaccarelli & Kim, 1995). Extra-familial factors include institutions that foster ties to the larger community (Garmezy, 1991) and school environments providing caring and connectedness (Resnick, Harris, & Blum, 1993). Kadner (1989) identified social intimacy, a confiding relationship with at least one individual, as a critical factor that promotes resilience.

Characteristics of Resilient Individuals

Many studies, several of them longitudinal in nature, have identified characteristics of resilient individuals who adapt despite adversity. These characteristics include cognitive skills (Garmezy, 1991; Werner & Smith, 1992); above average IQ (Radke-Yarrow & Sherman, 1990); reflectiveness in dealing with new situations (Garmezy, 1991); positive responsiveness to others (Garmezy, 1991; Werner & Smith, 1992); alertness, curiosity, enthusiasm, physical attractiveness (Radke-Yarrow & Sherman, 1990); multiple interests, goal-setting behaviour (Werner & Smith, 1992); being female in childhood, male in adolescence (Rutter, 1990; Werner & Smith, 1992); internal locus of control and high self-esteem (Moran & Eckenrode, 1992).

Analysis of data from a longitudinal study of 345 children, who were studied in 1976, 1980-82, and 1990-92, identified the fluctuating nature of the ability to adapt despite diversity. The ability to adapt was found to be a function of the interaction between maturational, individual, and environmental influences. The results of this research indicated that familial and extra-familial factors may operate by supporting the development of a resilient personality characteristic that includes a "positive self-image and an internal sense of control, which are expressed in goal-setting and planning behaviour and in a determination" (Herrenkohl, Herrenkohl & Egolf, 1994, p 306) to

succeed.

Resilience as a Personality Characteristic

The characteristics of resilience were identified in a qualitative study conducted by Wagnild & Young (1990) using a grounded theory approach. Audio-taped interviews were conducted with 24 women between the ages of 67 and 92. Participants were asked to recount their adjustment to a recent major loss. Interview transcripts were analyzed and five themes of resilience that emerged across interview questions and between participants were identified. The five themes included equanimity, a balanced perspective of one's life and experience; perseverance, the act of persistence despite adversity or discouragement; self-reliance, a belief in oneself and one's capabilities; meaningfulness, the realization that life has a purpose and the valuation of one's contributions; and existential aloneness, the realization that each person's life path is unique. These internal resources or strengths fostered flexibility and enabled the participants to restore balance to their life following a difficult experience. The results of this qualitative study formed the basis for the development of a Resilience Scale, a measure of individual resilience.

In an attempt to explore the psychometric properties of the Resilience Scale (RS), Wagnild and Young (1993) conducted a study with 810 randomly selected senior citizens who completed the RS, a demographic survey, and several measures of adaptation. It was hypothesized that scores on the RS would be positively related to measures of adaptation to stress (life satisfaction, morale, and self-report of health) and negatively correlated with depression (Wagnild & Young, 1993). As hypothesized, significant relationships ($p \leq .001$) were found between resilience and life satisfaction (r

= .30), morale ($r = .28$), self-report of health ($r = .26$), and depression ($r = -.37$).

Exploratory factor analysis identified two factors reflecting the theoretical definition of resilience. Factor I, labelled Personal Competence, reflected the self-reliance, independence, determination, invincibility, mastery, resourcefulness, and perseverance aspects of resilience. Factor II, labelled Acceptance of Self and Life, reflected adaptability, balance, flexibility, and balanced perspective of life.

Recently, a large survey study ($N=776$) of community dwelling older adults was conducted to examine the relationship between resilience and healthy lifestyle practices (G. Wagnild, 1997). Canonical correlational analysis identified two canonical functions that together accounted for 61.93% of shared variance. The first variant explained 47.19% of variance and indicated that participants who reported better health status and greater resilience were more likely to practice health promoting behaviours. These findings support the hypothesis that resilience is positively related to adaptive behaviours such as practising a healthy lifestyle and with health status.

Three separate qualitative studies conducted by Beardslee (1989) identified self-understanding as a characteristic of resilient individuals. "Self understanding is a psychological process through which an individual makes causal connections between experiences in the world at large and inner feelings" (Beardslee, 1989, p 268). Self-understanding includes the presence of thought and reflection about oneself and events, as well as action congruent with such reflection. Using an inductive approach to concept development, civil rights workers ($N=11$), survivors of cancer ($N=3$), and children of parents with affective disorders ($N=20$) were interviewed using an open-ended, life history data-gathering method. Five common dimensions of self-

understanding were identified. The first dimension was adequate cognitive appraisal, the ability to identify changing circumstances and the need for concomitant change within themselves. The ability to realistically appraise individual capacity for and individual consequences of action was the second dimension. Participants learned to direct their energies to what they could do and refrained from blaming themselves for unfulfilled dreams. They expressed the belief that control of the situation resided within them. These sentiments are similar the equanimity and self-reliance expressed by participants in Wagnild & Young's (1990) study. Engagement in world action, the third dimension, was a visible expression of the participants sense of worth and belief in what they were doing. This quality is similar to the meaningfulness expressed by the participants in Wagnild & Young's (1990) study. The final two dimensions recognized that self-understanding deepened and became more comprehensive with age and influenced participants' ability to adapt to subsequent stresses. Over time, all of the participants came to find some certainty and predictability in their world and their sense of themselves. Their confidence and self-esteem was not altered by subsequent negative events and they viewed the future with hope. They were not immobilized by past experiences, but were able to change and adapt to shifting circumstance by building on past experiences. The dimensions of resilience identified in these studies are similar to those discovered by Wagnild & Young (1990), and therefore, provide partial confirmation of their theoretical conception of resilience.

A study of persons with AIDS adds further support to Wagnild & Young's view of resilience as a personality characteristic. In this study, gay men with AIDS ($N=53$)

from a clinic in New York City were interviewed and completed several self-rating scales (Rabkin, Remien, Katoff & Williams, 1993). These men, were considered long-term survivors, having lived for three years following diagnosis of an AIDS-defining opportunistic infection. As long term survivors of AIDS, these men would have experienced multiple and recurrent challenges requiring extraordinary and recurring adaptation. Each participant completed measures of physical functioning and psychological functioning including Karnofsky Performance Status (Karnofsky), RAND Physical abilities Battery (RAND), quality of life - Global Assessment of Functioning Scale (GAF), Spitzer Quality of Life Index (QL Index) and Beck's Hopelessness Scale.

Nearly all of the participants in this study, despite their physical and psychological stressors, had preserved their quality of life and psychological functioning. Their psychological functioning, measured by the GAF, fell within the range defined as healthy, indicated good psychological adjustment in a global sense, $M = 71.3$, $SD = 7.2$. Participants ratings of their quality of life, measured by the QL index, were similar to ratings of a healthy population ($M = 8$ and 8.8 respectively). The participants quality of life was affected somewhat negatively by physical impairment which was measured by the RAND and Karnofsky, $r = .83$ and $-.67$ respectively, $p < .05$. Participants' attitudes and levels of optimism about the future, measured by Beck's Hopelessness Scale, fell within the mild range ($M = 4.5$, $SD = 4.1$) similar to the finding in a community sample ($N = 400$). The generalizability of these study results is limited since the participants were chosen from the same clinic and were all highly educated, mostly occupationally successful, and had access to extensive social services.

However, the men in this study displayed psychological resilience; they shared convictions that good times lay ahead and that life continued to be worthwhile; they continued to work toward goals, and had the ability to adapt to changing circumstances. Similar sentiments were shared by elderly women (Wagnild & Young, 1990), civil rights workers (Beardslee, 1989), survivors of childhood cancer (Beardslee, 1989), and adolescents whose parents had serious affective disorders (Beardslee, 1989).

Measures of Resilience

Prior to the development of the RS, resilience had been measured by adaptive outcomes, usually in the realm of social and psychological competence (Kadner, 1989; Luther, 1993; Wagnild & Young, 1993). Some of the outcomes measured included life satisfaction, morale, depression, physical health and participation in healthy lifestyle practices (Wagnild & Young, 1993, 1997). These measures serve to identify an individual's effective response to a stressor. However, they do not directly measure the resilient personality characteristics that enable an individual to respond to stressors in an adaptive manner. Results from several research studies have identified a variety of personality characteristics that promote successful adaptation such as a sense of equanimity, meaningfulness, optimism, and a belief that life is worth-while (Beardslee, 1989; Rabkin et al., 1993; Wagnild & Young, 1990); a goal oriented approach to life (Rabkin et al. 1993; Wagnild & Young, 1990; Werner & Smith, 1992); the ability to adapt to changing circumstances (Beardslee, 1989; Rabkin et al., 1993), high self-esteem (Beardslee, 1989; Moran & Echenrode, 1992); self-reliance, self-confidence and a belief that control of a situation resides within the individual (Beardslee, 1989; Wagnild & Young, 1990); and adequate cognitive appraisal of both the situations and

individual capacity to deal with the situations (Beardslee, 1989; Garmezy, 1991; Wagnild & Young, 1990; Werner & Smith, 1992) as well as environmental factors such as parents who set rules and respect their children's individuality (Werner & Smith, 1992); a warm and supportive relationship with a parent (Spaccarelli & Kim, 1995); institutions that foster ties to the larger community (Garmezy, 1991); school environments providing caring and connectedness (Resnick, Harris, & Blum, 1993); and a confiding relationship with at least one individual, that help to shape these personality characteristics. However, it was not until Wagnild and Young (1993) developed the RS based on their qualitative study that a direct measure of the resilient personality characteristic was available. Use of this measure will facilitate identification of an individual's level of resilience, factors that influence the development of resilience, and interventions that promote the development of resilience.

Health-Promoting Lifestyle Practices

Health

Family health is a process that includes the promotion and maintenance of physical, mental, spiritual, and social health of the family and individual family members (Johnson, 1984). The process of family health promotion and maintenance can be facilitated by health care providers assisting families in building strengths such as resilience and enhancing resources (Pender, 1996). The outcome of this health promotion and maintenance process can be measured by a families' participation in a health-promoting lifestyle.

Healthy Lifestyle

Healthy lifestyle is defined as a constellation of discretionary activities with

significant impact on health status that are an inherent aspect of one's pattern of living (Wiley & Camacho, 1980). Healthy lifestyle can be further subdivided into those practices that are motivated by a desire to prevent or protect from disease and those practices that are motivated by a desire to promote wellness (Pender, 1987). The health promoting component of lifestyle is a positive approach to living that is directed toward sustaining or increasing the level of well-being, self-actualization, and personal fulfilment of a given individual or group (Pender, 1996). Examples of health-promoting lifestyle activities include eating a balanced diet, exercising regularly, building positive relationships, assuming responsibility for self, setting realistic goals, and engaging in satisfying leisure activities (Pender, 1996).

Family Health-Promoting Lifestyle

The family, as the primary socializer of health promotion, is responsible for the development of health-promoting or health-damaging lifestyles in its members (Pender, 1996). Unfortunately, the number of studies that have examined health promotion in the family is very limited. Duffy (1988) reviewed 105 issues in four major nursing journals and found five articles which addressed this issue. Although there is limited evidence of research with family groups as the unit of analysis, there are ample studies that focus on the development of health promotion attitudes and behaviours in family members. Family factors, identified by research, that influence health promotion practices in family members include mother's level of education (Ford-Gilboe, 1994), decision making ability (Duffy, 1984), parenting style (Pratt 1973, 1976), supportive family environment (Dryfoos, 1990), and parental monitoring of activity (Cernkovich & Giordano, 1987; Larzelere & Patterson, 1990).

In order to identify the effectiveness of a family's health-promoting process, outcomes must be measured. Unfortunately, there is no instrument available that measures the health-promoting lifestyle of families as a group. However, a number of measures of individual health-promoting lifestyle have been developed.

Measures of Family Health-Promoting Lifestyle

Walker, Sechrist, & Pender (1987) developed the Health-Promoting Lifestyle Profile (HPLP) to measure the health-promoting lifestyle of individuals. "This instrument will enable researchers to investigate patterns and determinants of health-promoting lifestyle, as well as the effects of interventions to alter lifestyle" (Walker et al., 1987, p 76).

In several studies that have used the HPLP, significant correlations have been found between parents or mothers' participation in healthy lifestyle practices and their childrens' participation in healthy lifestyle practices. In a descriptive correlational study of adolescent girls and their mothers and fathers ($N = 217$), Gillis (1994) identified positive relationships between the fathers' and mothers' health-promoting lifestyle and the health-promoting lifestyle of their daughter. However, the relationship between the mothers' and daughters' health-promoting lifestyle was stronger ($r = .28, p < .01$) than the relationship between the fathers' and daughters' health-promoting lifestyle ($r = .16, p < .05$). These findings are similar to those of Donovan, Jessor, & Costa (1991) and Riccio-Howe (1991) who reported significant correlations between maternal participation in health-promotion behaviours and involvement of adolescent daughters in these health-promoting behaviours. Other studies have identified the influence of parental health-promoting lifestyle behaviours on the health practices of pre-school and

school age children (Cohen, Felix, & Brownell, 1989; Dielman, Leech, Becker, & Horvath, 1984). All of these studies have provided support for the influence of parents', particularly mothers', participation in healthy lifestyle practices on the healthy lifestyle practices of children in the family.

Further support for the relationship between mother's health-promoting lifestyle practices and family health behaviour is provided by the positive correlation between mother's health-promoting lifestyle activity and family health work, the process of engaging in health-promoting activity ($r = .51, p < .01$) (Ford-Gilboe, 1994). It is difficult to ascertain the direction of influence between these two activities. However, regardless of the direction of influence, the role modelling of health-promoting lifestyle practices by mothers' should, by the process of vicarious learning, promote family members' self-efficacy in their ability to perform health-promoting behaviours. In an analysis of 11 studies examining variables that predict health behaviours, self-efficacy and barriers were identified as the strongest predictors of participation in health behaviours (Pender, 1996). Therefore, family self-efficacy in performing health-promoting lifestyle practices, developed as a result of vicarious learning, should promote actual participation in these practices. In addition, family participation in health work should promote healthy-promoting lifestyle practices in all family members.

Summary

Although there is theoretical support for the positive impact of both the personality characteristic of resilience and health work on family members' participation in health promoting behaviours, studies supporting these relationships are

very limited. The relationship between resilience and health-promoting lifestyle practices has only been examined in an elderly population. Similarly, the relationship between health work and health-promoting lifestyle practices has been studied in one investigation involving families with school-aged children. In no studies has the relationship between resilience and health work been examined. Thus, there is a clear gap in the literature regarding the relationships among a family member's level of resilience, family participation in health work and individual health-promoting lifestyle practices. This study attempted to address this gap by investigating the relationship among mother's resilience, family health work, and mother's health-promoting lifestyle practices in families with pre-school children.

Hypotheses and Research Questions

Based on the Developmental Health Model (1990) and a review of the literature, the following research hypotheses were addressed in this study:

1. There is a positive relationship between mother's resilience and health work of families with pre-school children.

Health potential positively influences family participation in health work (Ford-Gilboe, 1994). Health potential consists of family strengths, motivations and resources. Resilience is a personality characteristic or strength that promotes coping and adaptation (Wagnild & Young, 1993). Health work is a process of family engagement in health related coping and development activities (Allen, 1983). Therefore, it is reasonable to predict that mothers' resilience as a component of health potential positively influences participation in health work.

2. There is a positive relationship between family participation in health work

and mothers' health-promoting lifestyle practices in families with pre-school children.

Participation in health work promotes healthy ways of living (Allen, 1989).

Health-promoting life-style practices "enhance the level of wellness, self-actualization, and fulfilment of the individual" (Walker et al., 1987, p 77). Therefore, it is reasonable to predict that family participation in health work positively influences mothers' participation in health-promoting lifestyle practices.

3. There is a positive relationship between mothers' level of resilience and mothers' level of participation in health-promoting lifestyle practices in families with pre-school children.

Health-promoting lifestyle is "a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization, and fulfilment of the individual" (Walker et al., 1987, p 77). Resilience is a personality characteristic that is mobilized to promote healthy outcomes during stressful situations (Wagnild & Young, 1993). Participation in health-promoting lifestyle practices and the mobilization of resilient personality characteristics are both self-initiated acts, the outcomes of which are enhanced levels of health. Therefore, it is reasonable to predict that mothers' level of resilience positively influences mothers' participation in health-promoting lifestyle practices.

Statement of Research Question

In addition to the hypothesis, the following research question was addressed in this study:

1. What are the relationships between selected demographic variables (age,

marital status, family income, mothers' educational level, employment status, ethnicity, occupation), and mothers' resilience, mothers' health-promoting lifestyle practices, and family health work.

CHAPTER III

METHOD

Design

Since little or no research had previously explored the study variables, a descriptive correlational survey design was used to examine the relationships among mothers' resilience, health work, and mothers' health-promoting lifestyle practices in families with pre-school children. Three instruments were used to measure the variables identified in the theoretical framework described in Chapter II. A fourth questionnaire measured specified demographics of the sample population.

Setting and Sample

A convenience sample of 67 mothers with at least one pre-school child (3 - 5 years of age) was recruited from three nursery schools (in a small Southern Ontario city). The nursery schools serve approximately 167 families from varied educational, economic and employment backgrounds. The researcher met with a member of the executive committee of each nursery school to explain the purpose and significance of the study, and to gain permission to conduct the research in their respective facilities.

A power analysis determined that a sample of 68 mothers was needed to achieve a power of .80 and to detect an r of .30 at the 0.05 level of significance (Polit & Hungler, 1995). In previous studies, both health work and resilience were moderately correlated with health-promoting lifestyle practices ($r = .41 - .51$) (Ford-Gilboe, 1994; Wagnild, 1997). The relationship between resilience and health work has not previously

been examined. Therefore, Cohen's convention for a moderate effect size (.30) was used in the power analysis (Cohen & Cohen, 1983).

The sample was recruited in two phases. Initially, the researcher presented an overview of the study to parents at the annual meetings of two nursery schools. A letter explaining the study and requesting participation was distributed to each family at that time (Appendix A). Families were asked to indicate their interest in participating in the study by completing the "willingness to participate" form and returning it to the teachers at each nursery school. Of the 139 nursery school families, 77 returned forms indicating their willingness to participate and 65 of those returned the completed questionnaires to the researcher.

In order to ensure access to the desired sample size of 68, an executive member from a third nursery school was contacted. Families are referred to this nursery school based on the economic, cultural, or psycho-social needs of the family or children. It was hoped that inclusion of families from this nursery school would increase the diversity of the sample. Because many parents affiliated with this school had limited english literacy skills, the teacher personally identified and invited parents who had the language capacity to participate in the study. Of the 28 families in the nursery school, 8 families received questionnaires and 2 of these questionnaires were completed and returned to the researcher. In total, of the 85 families surveyed, 67 (78.8%) returned the completed questionnaires and were included in the data analysis. The limitations placed on the generalizability of the study by this sampling method will be considered when reporting and discussing research findings.

Criteria for Sample Selection

Mothers recruited for participation in this study fulfilled the following criteria:

1. physical custody of at least one biological or adopted child between the ages of 3 and 5
2. ability to speak and read english
3. consent to participate in the study

Rationale for Sample Selection

Since health behaviours and attitudes are learned at a young age through socialization within the family, it is important to determine family factors that influence the internalization of attitudes and behaviours that promote health. Since pre-school children do not have the cognitive capacity to provide information about health practices and the influence of the family on these practices, mothers of pre-school children were sought to provide this information. As the primary socializers of children and 'health guardians' of the family, mothers are the best source of health information in families (Ford-Gilboe, 1994). Also, previous research revealed no significant differences in ratings of family health work provided by mothers and pre-adolescent children from the same family, suggesting that mother's ratings of health work may be a reasonable proxy for the family (Ford-Gilboe, 1994). In addition, mothers' health practices have been linked to childrens' practices. Since there is no measure of family health-promoting lifestyle, mothers' health-promoting lifestyle, was used as a starting point in beginning to examine the role of health work on health-promoting lifestyle practices. This is a feasible course of action in view of the unresolved measurement problems.

Demographic Characteristics of the Sample

Descriptive statistics for demographic variables are presented in table format. Percentages reported are based upon the number of complete cases for each variable.

Mothers ranged in age from 27 to 44 years, with a mean of 33.1 years ($SD = 3.82$). The educational level of the mothers ranged from 10 to 19 years, with a mean of 15.2 years ($SD = 2.51$). More than half of the mothers had some form of post-secondary education. The majority of mothers (80.6%, $n = 54$) were employed, 24 full-time and 30 part-time. Mother's occupations were classified using the seven category structure proposed by Hollingshead (1975). The majority of employed mothers held professional/managerial (35.5%, $n = 19$) or clerical/technical (22.2%, $n = 12$) positions. See Table 1 for the means, standard deviations and distributions of mothers' demographic variables.

Mothers' partners were employed primarily in professional/managerial (21.9%, $n = 19$) and the minor professional (34.4%, $n = 17$) occupations. Family income ranged from (\$22,000 to \$120,000 per year), with a mean of \$66,570 ($SD = \$23,670$). Employment was the primary source of income for the vast majority of families (95%, $n = 65$), with the remaining families receiving income from employment and Unemployment Insurance ($n = 1$) and employment and child support ($n = 1$) (Table 2).

The vast majority of the mothers (95.5%, $n = 64$) were either married or living in a common-law relationship, while the remaining mothers' were divorced or separated (4.5%, $n = 3$). The length of the mothers' current marital status ranged from 1.5 to 21.9 years, with a mean of 8.7 years ($SD = 3.21$). All but two

Table 1
Demographic Profile of Mothers (N = 67)

Variable	Mean	SD	Frequency	Percentage	N
Age	33.13	3.82			61
20-29			10	16.4	
30-39			47	77.1	
40-49			4	6.5	
Education	15.20	2.51			66
9-11 years			1	1.5	
12-14 years			24	36.3	
15-17 years			27	41.0	
18-19 years			14	21.2	
Employment Status					67
employed full-time			24	35.8	
employed part-time			30	44.8	
unemployed			13	19.8	
Occupation					54
Executive			2	3.7	
Professional			19	35.2	
Minor Professional			6	11.1	
Clerical/Technical			12	22.2	
Skilled			1	1.9	
Semi-skilled			8	14.8	
Unskilled			6	11.1	

Table 2

Partner Occupation and Income Profile of Sample Families (N = 67)

Variable	Mean	SD	Frequency	Percentage	N
<u>Family Income</u>	66.57	23.67			53
(in thousands)					
20-39			6	11.3	
40-59			13	24.5	
60-79			15	28.4	
80-99			11	20.7	
> 100			8	15.1	
<u>Income Sources</u>					67
employment			65	97.0	
employment + UIC			1	1.5	
employment + child support			1	1.5	
<u>Partner Occupation</u>					64
Executive			3	4.7	
Professional			19	29.7	
Minor Professional			17	26.5	
Clerical/Technical			4	6.3	
Skilled			14	21.9	
Semi-skilled			4	6.2	
Unskilled			3	4.7	

Table 3

Composition of Sample Families (N = 67)

Variable	Mean	SD	Frequency	Percentage	N
<u>Marital Status</u>					67
Married/Cohabitation			64	95.5	
Separated/Divorced			3	4.5	
<u>Marital Status in Years</u>	8.70	3.21			65
1-4.9 years			4	6.2	
5-9.9 years			39	60.0	
10-14.9 years			20	30.7	
15-19.9 years			1	1.6	
20-24.9 years			1	1.5	
<u>Family Developmental Stage</u>					67
Pre-school			35	52.2	
School Age			24	35.9	
Adolescent			7	10.4	
Launching			1	1.5	
<u>Family Composition</u>					67
Parents and children			65	97.0	
Parents, children and other relatives			2	3.0	
<u>Family Size</u>	4.31	.87			67
2			1	1.5	
3			6	8.9	
4			38	56.7	
5			17	25.4	
6			3	4.5	
7			2	3.0	
<u>Number of Children</u>	2.28	.71			67
1			6	9.0	
2			40	59.7	
3			17	25.3	
4			4	6.0	

mothers were in either the family developmental stage of families with pre-school children (52.2%, $n = 35$) or families with school age children (35.7%, $n = 24$). The vast majority of mothers (97%, $n = 65$) defined their families as parents (themselves and partners if applicable) and their children. Family size ranged from 2 to 7 people, with a mean of 4.31 ($SD = .87$). The number of children ranged from 1 to 4, with an average of 2.28 children ($SD = .71$) (Table 3).

Approximately one-half of the mothers identified their cultural roots as British (49.3%, $n = 33$), with the remaining participants (35.5%, $n = 18$) describing their ethnicity as European. For all but 3 families (4.5%), the primary language spoken in the home was English (95.5%, $n = 63$). All participants were caucasian and the majority identified religious affiliation as either Protestant (64.6%, $n = 42$) or Roman Catholic (23.1%, $n = 15$) (Table 4).

Study Instruments

Four instruments were used to measure the variables in this study. See Appendix B for copies of the instruments. The Resilience Scale (Wagnild & Young, 1993) was used to measure the mothers' level of resilience. The Health Options Scale (Ford-Gilboe, 1994) was used to measure the family's degree of participation in health work. The Health Promoting Lifestyle Profile II (Pender, 1996) was used to measure the mother's level of participation in health-promoting lifestyle practices. A Demographic Questionnaire was used to gather demographic information about the family and its members.

Table 4

Cultural Profile of Sample Families (N = 67)

Variable	Frequency	Percentage	N
Ethnicity by Region			51
British	33	64.7	
European	18	35.3	
Race			65
Caucasian	65	100	
Primary Language			66
English	63	95.5	
Hungarian	1	1.5	
German	1	1.5	
Dutch	1	1.5	
Religion			65
Roman Catholic	15	23.1	
Protestant	42	64.6	
Jewish	1	1.5	
No religion	5	7.7	
Other	2	3.1	

The Resilience Scale

The Resilience Scale (RS) is a 25 item summated rating scale which measures an individual's degree of resilience, a personality characteristic that enhances adaptation (Wagnild & Young, 1993). Items are arranged in two subscales: Personal Competence (17 items) and Acceptance of Self and Life (8 items). One additional item is included as an optional measure of the concurrent validity of the RS. Participants are asked to rate the extent to which each of the items reflects them on a 7-point scale, that ranges from 1(disagree) to 7 (agree). Total and subscale scores are computed by summing applicable items, with higher scores reflecting higher resilience. Norms have not been established for the RS.

The RS was developed from a qualitative study of 24 women who had adapted successfully following a major event (Wagnild & Young, 1990). Five components that constitute resilience were identified from the narratives. A scale of 25 positive items that reflected the five components of resilience was developed. A review by two psychometricians and two nurse researchers established content validity. The RS was pretested for readability and clarity of items, initial reliability, and specificity of directions by 39 undergraduate nursing students. Internal consistency was .89.

The RS scale has been tested with Alzheimer's Caregivers ($N = 39$), female graduate students ($N = 159$), first-time post-partum mothers ($N = 130$), and public housing residents ($N = 43$) (Wagnild & Young, 1993). Cronbach's alpha coefficient for these studies ranged from .76 to .90. To establish test-retest reliability, the RS was administered to pregnant and post-partum women ($N = 130$) during pregnancy and at

1, 4, 8, and 12 months post-partum. Correlations between RS scores at the 4 data collection points ranged from .67 to .84 ($p < .01$) which demonstrates stability.

Construct validity was established through correlations between the RS and instruments measuring concepts that are theoretically related to resilience including Self-Esteem Scale (Rosenberg, 1965) ($r = .57, p < .01$) and Perceived Stress Scale (Cohen, Kamarch & Mermelstein, 1983) ($r = -.32$ to $-.67, p < .05$). Concurrent validity was established through positive correlations between the RS and a number of adaptational outcome measures: Philadelphia Geriatric Center Morale Scale (Lawton, 1975) ($r = .54, p < .001, r = .43, p < .01$), Life Satisfaction Index (Neugarten, Havighurst & Tobin, 1961) ($r = .43, p < .01$), General Health Rating Scale (Davies & Ware, 1981) ($r = .40 - .50, p < .001$), and Depression Scale (Beck & Beck, 1972) ($r = -.36, p < .01$). Theoretically, resilience facilitates adaptation.

The RS was further tested in a random sample of 810 community-dwelling older adults (Wagnild & Young, 1993). The mean score on the RS was 147.91 ($SD = 16.85$). No significant relationships were found between the RS and age, education, income, or gender. Internal consistency was .91 and item-to-total correlations ranged from .37 to .75 ($p < .001$). Initially, the RS items were selected to reflect the five identified components of resilience. However, factor analysis of the items identified only two factors reflecting the theoretical definition of resilience. Factor I, labelled personal competence, includes self-reliance, independence, determination, invincibility, mastery, resourcefulness, and perseverance. Factor II, labelled acceptance of life, includes adaptability, balance, flexibility, and a balanced perspective of life. Further evidence of concurrent validity of the RS was provided through correlations between

the RS and constructs linked with resilience and resilience outcomes. These included: depression ($r = -.37, p < .001$), life satisfaction ($r = .30, p < .001$), morale ($r = .28, p < .001$), and health ($r = .26, p < .001$).

In all studies, scores on the RS did not encompass the full range of possible scores and the distribution tended to be negatively skewed. Possible scores on the RS can range from 25 to 175. Scores in Wagnild & Young's (1993) study ranged from 75 to 175. Inclusion of negatively worded and low resilience items should be piloted in an attempt to rectify this problem. Also, the vast majority of respondents have been female (Wagnild & Young, 1993).

A large study examining the relationship between resilience and health-promoting behaviours among older adults ($N=776$) was recently completed (Wagnild, 1997). The Cronbach's alpha reliability coefficients for the total scale and the subscales, Personal Competence and Acceptance of Self and Life, were in the acceptable range ($\alpha = .91, .92$ and $.81$, respectively). Positive correlations between resilience and health-promoting behaviours were found ($p < .0001$) as follows: stress management, $r = .45$; self-actualization, $r = .65$; nutrition, $r = .31$; interpersonal support, $r = .49$; health responsibility, $r = .34$; and exercise, $r = .23$.

In this study, internal consistency for the RS was adequate ($\alpha = .85$ for the total scale, $\alpha = .82$ for the Personal Competence subscale, and $\alpha = .72$ for the Acceptance of Self and Life subscale). Mothers' scores on the RS ranged from 109 to 166.

The Health Options Scale

The Health Options Scale (HOS) (Ford-Gilboe, 1997), is a 21- item summated rating scale which measures the degree of family participation in health work.

Participants indicate the extent to which their families engage in behaviours reflecting health work by circling a number on a 4-point likert scale from "strongly disagree" (1) to "strongly agree" (4). Items are arranged in three subscales; 1) Attending, which reflects active involvement in health matters (8 items); 2) Goal Attainment, which reflects identification and pursuing of health goals (6 items); and 3) Experimenting, which reflects working through health problems using a problem-solving approach (7 items). Total and subscale scores are obtained by summing scores of applicable items, with higher scores reflecting higher degrees of health work. Some items are reverse scored. The reading level of the HOS, determined using the FOG formula (Lynn, 1989) is fifth to sixth grade (Ford-Gilboe, 1994).

The original 29-item HOS was pilot tested with a sample of 35 mothers. Content validity of .97 had been established by two nurse experts prior to this test. Based on an item analysis, the scale was reduced from a 29 to 25 items ($\alpha = .89$). Next, the HOS was tested in an economically diverse sample of 138 families (Ford-Gilboe, 1994). The mother and one child (10-14 years) completed the HOS. Mothers' and childrens' scores were summed and averaged to create a family score. Evidence of construct validity was provided through a positive correlation between mother's scores on the HOS and the Health-Promoting Lifestyle Profile (HPLP) ($r = .51, p < .01$). The HPLP (Walker et al., 1987) is a 48-item instrument that measures the extent to which individuals engage in health-promoting lifestyles. A positive correlation was expected between the two instruments as they measure health promotion - one scale from a family and process perspective, the other from an individual and lifestyle perspective (Ford-Gilboe, 1996). Moderate positive correlations were also found between HOS scores and several well

established measures of health potential (family strengths, motivation, and resources). These instruments included FACES III (Olson, McCubbin, Barnes, Larsen, Muxem & Wilson, 1985), which measures family cohesion ($r = .30$, $p < .05$); the General Self-Efficacy Scale (Sherer et al., 1982), a measure of perceived confidence ($r = .26$, $p < .05$); and the PRQ85 (Weinert, 1987), a social support measure ($r = .31$, $p < .05$). According to the DHM, health potential positively influences the extent of involvement in health work. Therefore, the positive correlations found between each of these measures and the HOS supports construct validity of the scale.

Results of an item analysis were used to delete four items with item-correlations of $< .30$ from the scale. Exploratory factor analysis using Principal axis factoring (PAF), performed separately for mothers' and childrens' data, provided support for a single factor that explained 33% of the variance in health work for mothers and 31% for children. Three additional items with low factor loadings ($< .30$) were deleted from the scale. Alpha reliability coefficients for the revised 18-item scale were .91 for both mothers and children.

Based on further refinement of the health work concept, 20 new items were added to the Health Options Scale for a total of 38 items (Ford-Gilboe, 1997). A study with a diverse sample of 500 parents and children was recently conducted to provide more definitive evidence of the reliability and validity of the revised HOS. Data from four subsamples were used to assess: a) test-retest reliability and internal consistency, b) construct validity, including dimensional structure, and c) the comparability of two methods of administration (i.e. individual family member versus family consensus).

Factor analysis was used to examine dimensional structure of HOS using data

from 325 adult participants. Prior to the factor analysis, 11 items having item-total correlations of less than .30 were deleted from the scale. Using confirmatory factor analysis, a 3-factor solution containing 21-items was found to fit the data ($GFI = .89$) and account for 98% of item variance. The subscales were labelled as follows:

Attending (7 items), Goal Attainment (6 items), and Experimenting (8 items).

Correlations between subscales ranged from .42 to .61, and subscales were highly correlated with total scores on the scale (range .77 - .91). Internal consistency estimates were .88 for the total score, .82 for attending, .74 for goal attainment and .72 for experimenting. Test-retest reliability over a 2-week interval using data provided by 34 men and women who were nearing the end of the last trimester of pregnancy was .61, indicating moderate stability over a short period of time. As further evidence of construct validity, moderate correlations were found between HOS scores and several measures of theoretically-related constructs: the FACES III cohesion scale ($r = .36$) and Family Hardiness Index ($r = .30$), which are both measures of family strengths; the family APGAR ($r = .29$), a measure of family functioning; and the Problem Solving Inventory ($r = -.35$), which measures individual problem-solving style.

In this study, the internal consistency of the HOS was .86. Cronbach's alpha coefficient for the subscales were .81 for Attending, .60 for Goal Attainment, and .75 for Experimenting. The low reliability coefficient for the Goal Attainment subscale suggests a need for further review and refinement of this subscale.

Health-Promoting Lifestyle Profile II

The Health-Promoting Lifestyle Profile II (HPLPII) is a recently released scale developed to replace the Health-Promoting Lifestyle Profile (Pender, 1996). The

HPLPII is a 52-item summated rating scale designed to measure health-promoting behaviour, "conceptualized as a multi-dimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization, and fulfilment of the individual" (Walker et al., 1987, p 77). The 52 items are arranged in six subscales: Health Responsibility (9 items), Physical Activity (8 items), Nutrition (9 items), Spiritual Growth (9 items), Interpersonal Relations (9 items) and Stress Management (8 items). Items have been slightly altered from the HPLP. Participants are asked to indicate the frequency with which they engage in the behaviour indicated by each item on a 4-point scale that ranges from N (Never) to R (Routinely). Total and subscale scores are computed by summing the applicable items, with higher scores reflecting higher participation in health-promoting lifestyle practices.

Construct validity and reliability of the HPLPII were assessed in a sample of adult ($N = 712$) aged 19 - 92 (Walker, 1997). The Cronbach's alpha coefficients identified for each subscale were: Health Responsibility ($\alpha = .86$), Physical Activity ($\alpha = .85$), Nutrition ($\alpha = .80$), Spiritual Growth ($\alpha = .86$), Interpersonal Relations ($\alpha = .87$), Stress Management ($\alpha = .79$). Internal consistency of the total scale is .94. The six factors identified as subscales were derived from a factor analysis using a principal axis factoring.

The initial 100-item, 10 category, HPLP was developed from the Lifestyle and Health Habits Assessment (LHHA) (Pender, 1982). The LHHA consisted of a checklist of positive health behaviours and used a 4-point response format from 1 (never) to 4 (routinely). The pilot test of the HPLP, with a sample of 173 graduate and senior undergraduate nursing students, revealed high internal consistency (.92) and a two

week test-retest reliability ($r = .85$). Content validity of the HPLP was evaluated by four nursing faculty who were familiar with the health promotion literature. As a result of their recommendations the items were revised, resulting in an instrument containing 107 items.

The HPLP underwent further revision using data collected from a convenience sample of 952 middle class adults who ranged in age from 18 to 88. Following item analysis, the number of items on the HPLP were reduced from 107 to 70. Factor analysis supported six conceptually valid subscales, which explained 47% of the total variance in health-promoting lifestyles rather than the 10 factors initially identified. The six health-promoting subscales identified included: self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management. The number of items on the HPLP were further reduced to 48 by deleting 22 items that failed to load strongly on one of the six subscales. A second order factor analysis identified one factor, health-promoting lifestyle, on which all of the first-order factors loaded significantly (Walker et al., 1987). This suggests that the HPLP measures two hierarchical levels (Nunnally, 1978) - one broad concept reflecting health promoting lifestyles and six more specific dimensions of this concept. The internal consistency coefficient for the total scale was .92 and the subscales ranged from .70 to .90. A two week test-retest reliability was reported as .93 for the total scale and .81 to .91 for the subscales.

The 48-item HPLP instrument has been used in numerous studies with high internal consistency coefficients reported for both the total scale (range .92-.93) and the subscales (range .68-.92) in samples including 159 adolescent women (Felton, 1996),

385 ambulatory cancer patients (Frank-Stromborg, Pender, Walker, & Sechrist, 1990), 184 adolescent females and their parents (Gillis, 1994), 638 workers in an automotive components plant (Lusk, Kerr, & Ronis, 1995), 589 employees enrolled in a health-promotion program (Pender, Walker, Sechrist, & Frank-Stromborg, 1990), and 179 blue-collar workers (Weitzel, 1989).

In this study, Cronbach's alpha reliability coefficients for each subscale were: Health Responsibility ($\alpha = .80$), Physical Activity ($\alpha = .83$), Nutrition ($\alpha = .71$), Spiritual Growth ($\alpha = .82$), Interpersonal Relations ($\alpha = .83$), Stress Management ($\alpha = .78$). Internal consistency of the total HPLPII was .91. These findings further support reliability of the HPLPII.

Data Collection Procedure

Mothers who agreed to participate in the study were given a package containing a detailed information letter (Appendix A), a questionnaire (Appendix B), and a stamped addressed envelop in which to return the completed questionnaire to the investigator. The information letter clearly stipulated that only mothers were to complete the questionnaires, and that participation was voluntary. Completion of the questionnaire took approximately 20 minutes. The questionnaires for each facility were coded by number in order to identify the return rate from each facility. Reminder letters were distributed to those families who had not returned the questionnaires within two weeks.

Protection of Human Rights

Permission to conduct the study was obtained from the University of Western Ontario Review Board for Health Sciences Research Involving Human Subjects.

Permission to use the three instruments was obtained from the developers.

A letter of information that accompanied each questionnaire informed participants of their rights and any possible risks or benefits from their involvement in the study. Participants were advised that they had the right to refuse to answer any questions or withdraw from the study at any time.

To ensure participant confidentiality, code numbers were assigned to completed questionnaires and only the investigator has access to the coding key. All data will be kept in a locked file for a period of seven years, and only grouped data will be reported.

Data Analysis

All data was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics appropriate to the level of measurement were generated for all study variables. Pearson r correlation coefficients were used to test each of the three study hypotheses and to examine relationships between resilience, health work, health-promoting lifestyle practices, and each continuously measured demographic variable. Analysis of Variance (ANOVA) was used to examine the relationships between categorical demographic variables and resilience, health work, and health-promoting lifestyle practices. Following tests of the hypotheses, a hierarchical multiple regression analysis was conducted, to explore the extent to which mothers' resilience and family health work predicted mothers' health-promoting lifestyle practices. Internal

consistency of each instrument was calculated using Cronbach's alpha. The significance level for all study analysis was $p < .05$.

CHAPTER IV

RESULTS

The results of this study are presented in three sections. Descriptive statistics for all study variables are described in the first section. Section two includes results pertaining to each of the three hypotheses. The results associated with the research question are reported in the final section.

Descriptive Statistics

Means, standard deviations, and ranges of scores on all scales used in this study are presented in Table 5. The overall Resilience Scale score was high ($M = 142.12$, $SD = 12.87$) and similar to the score ($M = 147.91$, $SD = 16.85$) obtained from a random sample of 810 older adults (Wagnild & Young, 1993). The scores on the Personal Competence subscale ($M = 99.28$, $SD = 8.82$) and the Acceptance of Self and Life subscale ($M = 42.84$, $SD = 5.62$) were also high.

The mean of the 21-item HOS used in this study was moderate ($M = 61.93$, $SD = 5.92$). This mean is comparable to that found in the study which initially tested the 25-item HOS in families with pre-adolescent children ($M = 70.5$, $SD = 6.99$) (Ford-Gilboe, 1994).

The HPLPII score was moderate ($M = 139.87$, $SD = 17.92$). These findings are similar to those identified in Ford-Gilboe's (1994) study of mothers with pre-adolescent children ($M = 132.4$, $SD = 21.54$) using the HPLP.

Table 5

Means, Standard Deviations (N = 67)

Instrument	M	SD	Range	
			Possible	Actual
Resilience Scale	142.12	12.87	25-175	109-166
Personal Competence	99.28	8.82	17-119	69-116
Acceptance of Self and Life	42.84	5.62	8-56	29-55
Health-Promoting Lifestyle Profile II	139.87	17.92	52-204	100-182
Spiritual Growth	26.25	4.36	9-36	16-35
Health Responsibility	21.78	4.62	9-36	12-35
Physical Activity	19.12	4.97	8-32	10-32
Nutrition	26.58	4.20	9-36	15-36
Interpersonal Relations	27.51	4.17	9-36	17-36
Stress Management	18.63	3.79	8-32	12-32
Health Options Scale	61.93	5.92	21-84	46-78
Attending to Health Matters	24.07	3.08	8-32	16-31
Goal Setting/Achievement	17.42	2.26	6-24	12-21
Experimenting	20.43	2.24	7-28	13-27

Tests of Hypotheses

Hypothesis 1

In the first hypothesis, it was predicted that mothers' resilience would be positively related to health work of families with pre-school children. Although a significant positive correlation between mothers' resilience and family health work was found ($r = .21$, $p = .05$), this relationship was weaker than expected. Thus, there is questionable support for the hypothesis.

Goal attainment, one of the dimensions of health work, was significantly correlated with both mothers' total resilience ($r = .21$, $p = .05$) and the acceptance of self and life dimension of resilience ($r = .22$, $p = .04$). No relationships were found between the personal competence dimension of resilience and health work or health work components. Likewise, the attending and experimenting dimensions of health work were not significantly related to any aspect of mothers' resilience (Table 6).

Table 6

Pearson r Correlations between Resilience and Health Work (N = 67)

	Resilience	Personal Competence	Acceptance of Life and Self
Health Work	.21*	.19	.18
Attending	.19	.16	.18
Goal Attainment	.21*	.16	.22*
Experimenting	.17	.15	.17

* $p \leq .05$

Hypothesis 2

In the second hypothesis, it was predicted that participation in health work would be positively related to mothers' health-promoting lifestyle practices in families with pre-school children. Consistent with theoretical expectations, a significant positive correlation was observed between health work and mothers' health-promoting lifestyle practices ($r = .52$, $p = <.001$). Ford-Gilboe (1994) reported a similar correlation between health work and mothers' health-promoting lifestyle practices ($r = .51$, $p < .01$). Thus, the hypothesis was supported (Table 7).

Table 7

Pearson r Correlations between Health Work and Health-Promoting Lifestyle Practices

(N = 67)

	Health Work	Attending	Goal Attainment	Experimenting
Health-Promoting Lifestyle Practices	.52*	.56*	.59*	.31*
Health Responsibility	.51*	.40*	.48*	.44*
Physical Activity	.35*	.46*	.36*	.35*
Nutrition	.35*	.45*	.33*	.10
Spiritual Growth	.30*	.27*	.39*	.18
Interpersonal Relations	.33*	.32*	.54*	.04
Stress Management	.28*	.41*	.30*	.12

* $p \leq .05$

Each of the six HPLPII subscales was positively related to health work ($r = .28 - .52$). The strongest relationship was found to exist between health responsibility and health work ($r = .52, p = < .001$), while stress management had the weakest relationship with health work ($r = .28, p = .012$) (Table 7).

Each of the dimensions of health work (attending, goal attainment, and experimenting) was positively related to overall health-promoting lifestyle practices ($r = .31 - .59$), with the experimenting dimension having the weakest relationship ($r = .31$). Attending was positively correlated with all of the health-promoting lifestyle dimensions ($r = .27 - .46$), with physical activity and nutrition having the strongest relationship ($r = .46$ and $.45$, respectively). Goal attainment was also positively correlated with all of the dimensions of health-promoting lifestyle ($r = .30 - .54$), with interpersonal relations having the strongest relationship ($r = .54$). Experimenting was related to only two dimensions of health-promoting lifestyle practices: health responsibility ($r = .44$) and physical activity ($r = .35$).

In summary, only total health-promoting lifestyle practices, and two components - Health Responsibility and Physical Activity - were related to health work and each of its three identified dimensions.

Hypothesis 3

It was hypothesized that there would be a positive relationship between mothers' resilience and her health-promoting lifestyle practices in families with pre-school children. Consistent with theoretical expectations, a moderate positive correlation was found between mothers resilience and health-promoting lifestyle practices ($r = .42, p < .001$). Thus, the hypothesis was supported. (Table 8)

Table 8

Pearson r Correlations between Resilience and Health-Promoting Lifestyle Practices

(N = 67)

	Resilience	Personal Competence	Acceptance of Self and Life
Health-Promoting Lifestyle Practices	.42*	.33*	.45*
Health Responsibility	.20	.23*	.10
Physical Activity	.25*	.18	.28*
Nutrition	.16	.15	.12
Spiritual Growth	.58*	.48*	.59*
Interpersonal Relations	.31*	.21*	.39*
Stress Management	.24*	.09	.41*

*p < .05

Resilience was correlated with 4 of the 6 dimensions of health-promoting lifestyle practices. Spiritual growth ($r = .58$, $p < .001$) and interpersonal support ($r = .31$, $p = .005$) were moderately correlated with resilience, while physical activity ($r = .25$, $p = .02$) and stress management ($r = .24$, $p = .03$) were weakly correlated with resilience. In a previous study, the self actualization (spiritual growth), interpersonal support, and stress management aspects of health promoting lifestyle practices also had the strongest relationship with resilience ($r = .45-.65$, $p < .0001$) (Wagnild, 1997) and

moderate to low correlations were found between resilience and health responsibility ($r = .34$, $p < .0001$), nutrition ($r = .31$, $p < .0001$), and exercise ($r = .23$, $p < .001$). However, in this study, no relationships were found between resilience and either health responsibility or nutrition. The strongest relationships were found between the spiritual growth dimension of health-promoting lifestyle practices and resilience and both the personal competence and acceptance of self and life dimensions ($r = .48 - .59$, $p < .05$).

Research Question

The research question addressed the relationships between mothers' resilience, mothers' health-promoting practices, family health work, and the demographic variables of marital status, family income, mothers' educational level, age, employment status, occupation, and ethnicity, family composition, family developmental stage, family size, number of children, and primary language spoken. Since the study sample was relatively homogeneous (i.e. middle class, married, Caucasian, employed mothers of pre-school children), there was little variation on some demographic variables or categorical variables were poorly split resulting in few cases in subgroups. Although statistically significant relationships were identified in some of these instances, results should be viewed with caution.

Differences in mothers' resilience were found based on mothers' employment status ($F(2, 64) = 3.29$, $p = .04$). Mothers who worked full-time had the highest scores on the RS ($M = 147.33$, $SD = 11.23$), while mothers working part-time or those not employed outside the home had similar, but lower scores ($M = 139.03$, $SD = 13.43$, $M = 139.62$, $SD = 12.18$, respectively). However, post-hoc analysis using a

Student-Newman-Keuls test indicated that these differences were significant between only two groups: mothers who worked full-time and those who worked part-time, $F(2, 64) = 3.29, p = .04$.

Two variables - family income and mothers' education - were related to mothers' health-promoting lifestyle practices. Family income was positively correlated with mothers' health-promoting lifestyle practices ($r = .33, p = .02$) as well as with the spiritual growth ($r = .50, p = < .001$), health responsibility ($r = .42, p = .002$), and interpersonal support ($r = .30, p = .03$) aspects of health-promoting lifestyle practices. Mothers' level of education was related to spiritual growth and health responsibility ($r = .37, r = .29$, respectively, $p < .05$), but not to overall health-promoting lifestyle practices ($r = .21, p = .08$).

No relationships were found between health work or HOS attending and experimenting dimensions and any of the demographic variables. Differences in the goal attainment dimension of health work by marital status were found, $F(1, 65) = 4.06, p = .05$. Families in which parents were married or living in common-law relationships participated in more goal attainment activities ($M = 2.98, SD = .34$) than separated or divorced lone parent families ($M = 2.56, SD = 2.56$), $t(65) = 2.02, p = .048$.

In summary, two of the three study hypotheses were supported. As hypothesized, moderate positive correlations were found between family health work and mothers' health-promoting lifestyle practices and between mothers' resilience and her health-promoting lifestyle practices. The spiritual growth aspect of health-

promoting lifestyle practices was found to have the strongest relationship with both resilience and the personal competence and acceptance of self dimensions of resilience. Although a significant positive relationship between resilience and health work was found, the relationship was weak, and, therefore, these findings do not clearly support the hypothesis. Few demographic variables were related to resilience, health work or health-promoting lifestyle practices. Mothers' who were employed full-time were found to be more resilient than those employed part-time. Health work was not related to any demographic variables. However, married mothers reported more goal attainment activity in their families than separated or divorced mothers. Family income was related to mothers' health-promoting lifestyle practices and its spiritual growth and health responsibility dimensions. While mothers' education was related to spiritual growth and health responsibility dimensions of health-promoting lifestyle, it was not related to overall health promoting lifestyle practices.

Additional Analysis

Given that both mothers' resilience and family health work were moderately correlated with health-promoting lifestyle practices, a hierarchical multiple regression analysis was conducted to examine the extent to which these two variables would predict health-promoting lifestyle practices, with resilience entered at step 1 and health work entered at step 2. Table 9 displays the unstandardized regression coefficients (B), standardized regression coefficients (Beta's), R , and R^2 after entry of the two independent variables.

Table 9

Hierarchical Multiple Regression of Indicators of Health-Promoting Lifestyle Practice

(N = 67)

Step	Multiple R	R ²	F
1. Resilience	.42	.18	14.09*
2. Health Work	.61	.37	19.35*

Final Step - Variables in the Equation			
Variable	B	Beta	t
Resilience	.45	.328	3.24*
Health Work	1.36	.449	4.43*

* $p \leq .05$

With both independent variables in the equation, 37% of variance in health-promoting lifestyle practices was explained, $F(2, 64) = 18.87, p < .001$. At step 1, resilience accounted for 18% of the variance in health-promoting lifestyle practices, $F(1, 65) = 14.09, p < .001$. When health work was added to the equation at step 2, it accounted for an additional 19% of variance in health-promoting lifestyle practices ($F(2, 64) = 18.87, p < .001$). Both resilience and health work contributed unique variance to the solution.

CHAPTER V

DISCUSSION AND CONCLUSION

The purpose of this study was to test the relationships among mothers' resilience, identified as a personal strength, family health work and mothers' health-promoting lifestyle practices. The study results provide support for the Developmental Health Model proposition that family health work is positively related to health outcomes such as health-promoting lifestyle practices. In addition, findings from this study lend support to the argument that a mother's resilience influences her health-promoting lifestyle practices. However, clear support for the influence of mothers' resilience on family health work was not found. This chapter will include a discussion of the study results and the implication for nursing. Study limitations and recommendations for further research will then be presented, followed by a summary and conclusion.

Tests of the Hypotheses

Hypothesis 1

The weak positive relationship found between mothers' resilience and family health work does not provide clear support for hypothesis 1. This finding is contrary to theory suggesting that mothers' resilience promotes health work in families. Possible explanations for the weak relationship identified in this study may be related to the use of a cross-level research design, the relative social and economic advantage of the sample, or the construct validity of the Resilience Scale.

In cross-level research, the effects of variables at one level (individual) on those at another level (group) are examined (Rousseau, 1993). This study examined the effect of mothers' resilience, an individual variable, on family health work, a group variable. One problem in this type of research is "using data derived from one level to represent something at another level" (Rousseau, 1993, p 3). In this study, only the mother's perception was used to measure family health work. Is the mother's perception of health work a valid measure of this construct? Other family members' perceptions of family health work may differ quite substantially from that of the mother. Although Rousseau (1993) identifies the danger of misinformation resulting from aggregating individual data to reflect group data, aggregated data does reduce error resulting from perceptual bias or other cognitive limitations. By aggregating the mothers' and fathers' scores on the HOS, these biases and limitations may be reduced. In addition, inter-rater agreement between the mother and the father on the degree of family health work would add further support to the validity of the HOS as a measure of health work.

In organizational research, a field of study where cross-level designs are used frequently, much of the research has focused on the effect of higher-level processes (groups) on lower-level processes (individuals) as a result of the belief that, in general, social settings (groups) have a more pervasive influence on individuals than of individuals on groups (Barker, 1968). From a systems perspective, the family is influenced by a variety of internal and external factors at any point in time. All of these internal and external factors influence family health work. As a component of health potential, mothers' resilience is one of many factors that influence health work. The

positive impact of mothers' resilience on family health work may be mitigated by other factors that are simultaneously influencing health work activities. Therefore, the weak correlation found between resilience and health work may not be unrealistic.

The results of a recent study of factors influencing adolescent nutrition practices support the argument that there may be additional family and individual factors beyond mothers' resilience that interact to influence family health work. In this study, it was found that adolescents viewed their mothers as being more influential than their siblings, but less influential than their fathers in changing family eating habits (De Bourdeaudhuij, 1997). In several studies, the influence of mothers on eating habits of the family has been minimal if the husband or children opposed making this change (Coates, Jeffrey, & Slinkars, 1981; Pill & Parry, 1989). It is difficult for mothers to positively influence the health work of the family if there is opposition from internal or external factors such as other family members.

The composition of the study sample may have also contributed to the weak correlation found between resilience and health work. As a group, the mothers who took part in this study were highly resilient and socially advantaged. The mean annual family income of sample families was \$12,000 more than the national average for non-elderly families and 11.6% more of sample mothers were employed when compared to the national average for mothers of children less than six years of age (Che-Alford, Allan & Butlin, 1994). Mothers were highly educated, 98.5% having 12 or more years of formal education, and 50% holding executive, professional, or semi-professional positions. Resilience is a internal strength that is mobilized in the individual when a stressful or adverse situation occurs. Since these mothers enjoy a

socio-economically advantaged position, they may not be exposed to the same degree of adversity as mothers from lower socio-economic classes and, therefore, may have limited need to call on their resilient personality characteristics. These families may be able to effectively cope and develop as a family through the process of health work without the need to rely on resilience of the mother to support this process.

Further, it may be that the influence of health potential on health work varies across time and circumstance. What is identified as an aspect of health potential that promotes health work for one family at one point in time, may exert less influence on health work for a different family, or for the same family at a different point in time, or under different circumstances. As a result, research aimed at identifying dimensions of health potential should validate their influence on health work by studying these relationships in diverse groups of families experiencing different health-related situations. For example, it may be that resilience is a much more important determinant of health work in families that are highly stressed. In addition, the variable influence of dimensions of health potential on health work supports the value of situation-responsive nursing. In every nurse-family encounter, the family's health potential - strengths, motivations, and resources - may differ. Situation-responsive nursing responds to this fluctuating family health potential by identifying with the family their health potential during each encounter. Supportive learning environments can then be structured for the family that are congruent with the family's health potential at a specific point in time.

A final factor that may have influenced the low correlation between mothers' resilience and health work is the construct validity of the RS. Is the RS accurately measuring the personality characteristic of resilience? The positive correlations reported

between scores on the RS and measures of adaptive outcomes (i.e., morale, life satisfaction, health-promoting lifestyle practices), and the negative correlation between scores on the RS and measures of maladaptive outcomes (i.e., perceived stress, symptoms of stress, and depression) have provided support for the criterion-related validity of the RS. The instrument seems to validly predict adaptive outcomes. However, there has been minimal evaluation of the RS in terms of convergent validity. The relationship between resilience and other more closely-related personality variables has only been tested in one study. Scores on the RS were positively correlated with scores on a measure of self-esteem ($r = .57$, $p < .01$) in a study of post-partum mothers ($N = 130$) (Wagnild & Young, 1993). Further studies are required to examine the relationship between resilience, measured by the RS, and other personality variables, such as optimism, internal locus of control, self-efficacy, and hardiness in order to validate the extent to which the RS measures the personality characteristic of resilience. Therefore, the weak correlation found in this study between resilience and health work may be a result of the RS not accurately measuring the concept of resilience. This concern can only be substantiated through further examination of construct validity of the RS.

Hypothesis 2

As predicted in the second hypothesis, family health work was positively related to mothers' health-promoting lifestyle practices. This finding is consistent with findings from Ford-Gilboe's (1994) study of 138 families with pre-adolescent children. As predicted in the DHM, family engagement in health work, the problem-solving and goal attainment process that is the foundation of health promotion, promotes individual

participation in health-promoting lifestyle behaviours, an outcome of health work.

Thus, study findings provide support for the conceptual relationship identified in the DHM between health work and the adoption of healthy lifestyles, and for the criterion-related validity of the HOS.

Although family health work was moderately correlated with mothers' health-promoting lifestyle practices, the magnitude of relationships between dimensions of health work and health-promoting lifestyle practices was more variable. Health work, and each of the dimensions of health work, were most strongly correlated with the behavioural aspects of health-promoting lifestyle practices, namely, health responsibility ($r = .40 - .51$), physical activity ($r = .35 - .46$), and nutrition ($r = .33 - .45$). These results may have been influenced by mothers' definitions of health and their understanding of activities that promote health. Individuals may view physical activity and nutrition, rather than spiritual growth, interpersonal relations, and stress management as constituting typical health practices and, as a result, focus their health promoting activities in these areas. In addition, the majority of the items on the HOS include the word "health". Individuals frame their responses to items on this scale using their own definitions of health and health promotion activities. Previous research has shown that, although health conceptions are multidimensional (Colantonio, 1988; Laffrey, 1986; and Williams-Utz, Hammer, Whitmire, & Grass, 1990), absence of disease and fitness are the most widely held conceptualizations of health (Colantonio, 1988; Fugate-Woods, Laffrey, Duffy, Lentz, Sullivan-Mitchell et al., 1988; and Williams-Utz et al., 1990). In addition, several of the items on the HOS, particularly those on the experimenting subscale, which had the weakest correlation with the HPLP

($r = .31$), use the term "health problem" as the reference point. The use of this terminology may encourage participants to formulate their responses based on their experiences with medical disorders in their families and not on strategies that their families use in order to promote health in the absence of disease.

Hypothesis 3

Mothers' resilience was found to be positively related to mothers' health-promoting lifestyle practices as predicted in the third hypothesis. This finding provides further support for the relationship between resilience, as a dimension of health potential, and health-promoting lifestyle practices, a health outcome. However, the finding that resilience is moderately correlated with health-promoting lifestyle practices, but not the intermediate step, health work, requires further discussion. In addition, the relationships identified among the various dimensions of health-promoting lifestyle practices and resilience will be discussed.

In order to partially explain the finding that mothers' resilience was only weakly related to family health work, the problem solving and goal setting activity that promotes health outcomes, but was moderately correlated to health-promoting lifestyle behaviours, a health outcome, one has to consider the level of measurement of both resilience and health work and the characteristics of resilient individuals. Both resilience and health-promoting lifestyle practices are characteristics of individuals, while health work is a group quality. Individuals have more control and influence over their own behaviour than the behaviour of others. Therefore, it seems plausible that an individual's resilience - equanimity, perseverance, self-reliance, and meaningfulness of

life and purpose may more strongly affect his/her own healthy lifestyle behaviours than the health work behaviours of a group of individuals such as a family.

Study findings support the importance of both health work and mothers' resilience in promoting mothers' health-promoting lifestyle practices. Using multiple regression analysis, 37% of the total variance in health-promoting lifestyle practices was explained by the combination of mothers' resilience (18%) and health work (19%). As discussed previously, health work and the dimensions of health work were most strongly related to health responsibility, physical activity, and nutrition, the behavioural aspects of health-promoting lifestyle practices. In contrast, mothers' resilience was most strongly related to the cognitive/perceptual aspects of health-promoting lifestyle practices - spiritual growth, interpersonal relations, and stress management. These findings suggest that resilience and health work may be related to different but complementary aspects of healthy lifestyle (cognitive/perceptual and behavioural aspects, respectively). Both resilience and health work contributed equally to the prediction of mothers' health-promoting lifestyle practices, making the case for further investigation into how these relationships hold up across different studies.

The pattern of correlations found between resilience and the dimensions of health-promoting lifestyle practices is consistent with those reported by Wagnild (1997) in a study of elderly women. Both studies found the cognitive/perceptual aspects of health-promoting lifestyle practice, particularly spiritual growth, to have the strongest relationship with resilience. These results suggest that the influence of resilient personality characteristics on health-promoting lifestyle practices may be consistent across the female adult life span.

The positive relationship found between resilience and health-promoting lifestyle practices is consistent with findings of several studies in which a sense of internal control and personal competence, components of resilience, were found to be related to health-promoting lifestyle practices. In studies of company employees, graduate students, and a population experiencing arthritis, perceptions of health as internally controlled and viewing self as personally competent in dealing with life situations were associated with enhanced health-promoting lifestyle practices (Pender et al., 1990; Smith, Wallston, & Smith, 1995).

As a personality trait, resilience has a strong cognitive dimension and may exert its influence on healthy lifestyle practice through specific cognitive processes. For example, cognitive reappraisal - changing one's perceptions of a stressor - has proven to be an effective strategy for promoting health or adapting to stressful life events (Lazarus & Folkman, 1984). In Himelein & McElrath's (1996) study of child sexual abuse survivors, several cognitive reappraisal strategies were identified that assisted women to adjust to this aversive life event. These cognitive strategies included: disclosing and discussing the sexual abuse, minimization, positive reframing, and refusal to dwell on the experience. In addition, both child sexual abuse victims' and non-victimized women's psychological well-being were strongly associated with positive illusion cognitive strategies such as exaggerated beliefs of personal control over life events and unrealistic optimism about the future. "Optimism may protect against negative thinking and hopelessness, spur greater achievement, direct one to look ahead rather than behind, or serve to attract others" (Himelein & McElrath, 1996, p 748). The cognitive strategies identified in Himelein & McElrath's (1996) study are similar to

those expressed by long-term survivors of AIDS (Rabkin et al, 1993) and physically disabled individuals (Fine, 1991) who have been identified as resilient. It may be that the resilience or "preparedness" of these individuals promotes the use of health promoting cognitive strategies. However, the precise mechanisms by which resilience affects health-promoting lifestyle practices requires further exploration.

Research Question

In this study, few statistically significant relationships were found between the demographic variables and main study variables (i.e., mothers' resilience, health work, and mothers health-promoting lifestyle practices). Mothers' education, employment status and marital status along with family income were the only demographic variables having significant relationships with any of the main study variables.

Both mothers' education and family income were found to be positively related to mothers' health-promoting lifestyle practices. Mothers' education was specifically related to health responsibility and spiritual growth aspects of health-promoting lifestyle practices. Family income was related to health-promoting lifestyle practices and the dimensions of interpersonal relationships, spiritual growth, and health responsibility. These findings may indicate that mother's education provides the cognitive capacity, and family income the financial resources for promoting health. In related studies, the influence of education on health-promoting lifestyle practices has been identified in various populations (Frank-Stromborg et al., 1990; Lusk et al., 1995; and Weitzel, 1989). However, the influence of family income on health-promoting lifestyle practices was identified in only one of these studies (Frank-Stromborg, 1990). In several studies, no relationships were found between health-promoting lifestyle practices and either

education or income (Hubbard, Muhlenkamp, & Brown, 1984; Pender et al., 1990; Pratt, 1976). The conflicting results of these studies supports the need for further research in this area.

Differences in mothers' resilience were found by employment status, with mothers who worked full-time being more resilient than mothers' who worked part-time. However, there was no difference in the resilience of mothers' who were homemakers versus those who were employed full-time. This finding may have been influenced by the small number of homemakers who participated in the study ($n = 13$).

Much of the empirical literature about working mothers has focused on the differences between working mothers and homemakers. Minimal research has examined differences between mothers who work full-time as opposed to part-time. Research examining the impact of employment on women's well-being has produced contradictory findings. Research on the influence of labour force participation, particularly in the area of mental health, assumes one of three positions; a role stress perspective - employment creates role overload, leading to increased stress, resulting in psychological distress; role expansion - employment leads to enhanced resources that are used to promote health; or the selection perspective - the relationship between the influence of the multiple roles of employed women and mental health is influenced by prior emotional characteristics (Bolger, DeLongis, Kessler, & Wethington, 1990). The role expansion position view of women's participation in the labour force is most consistent with the finding that mothers employed full-time were more resilient than mothers who were employed part-time. Womens' sense of competence, self-worth, and self-esteem are enhanced as a result of employment (Haw, 1995; Sieber, 1974; Thoits,

1983). Generally, womens' physical and mental health is positively influenced by the number of roles that they occupy, (Baruch, Biener, & Barnett, 1987; Meleis, Norbeck & Laffrey, 1989). Thus, employment fosters women's well-being.

Further, it has been proposed that women with multiple roles are able to reduce their psychological distress from one role by participating in another role. Mothers may find some release from the stresses of parenting by participating in some form of employment. Non-employed mothers have no rewarding job to mitigate the distress associated with poor relations with their children (Barnett, & Marshall, 1992). In addition to being a source of stress release, the status of the job occupied can influence health potential and health outcomes; employment that includes career importance and job status has been found to enhance womens' sense of well being (Brown, 1987). However, there is some disagreement about whether having pre-school children has no influence (Barnett & Marshall, 1992) or negatively impacts the benefits of working derived by mothers (Emmons, Biernat, Tiedje, Lang, & Wortman, 1990; Haw, 1995).

The difference found in resilience of full-time versus part-time working mothers has not been found in other studies. In Anderson-Kulman and Paludi's (1986) study examining predictors of positive coping in families with working mothers, marital status and full- as opposed to part-time job status were not predictors of family functioning. Mothers' job satisfaction, minimal family conflict, and family participation in cultural and intellectual activities were associated with mothers' coping. Organization, the degree of structure and planning in the family, was the only dimension where mothers who worked part-time scored significantly lower than mothers who worked full-time. The perseverant and self-reliant characteristics of

resilient mothers who work full-time may foster this organizational dimension.

However, the relationship between these variables was not examined in this study.

Although cross-sectional analysis of general population data shows that employed women have a somewhat better level of mental health than homemakers, this does not indicate that there are no stressors associated with employment (Bolger et al., 1990). This may indicate that the positive aspects of employment outweigh the role stress experience, or the decision to participate in the labour force is associated with good mental health. Perhaps mothers with higher levels of resilience are those that choose to work full-time and raise children at the same time. Alternatively, mothers who worked part-time in this study may have worked sporadically or only a few hours per week and, thus, may have not benefited from the self-enhancing factors that working may provide for women. Further, mothers who worked full-time, as opposed to part-time, may have been employed in jobs with career importance or job status that enhanced their resilience. The relationship between employment status and resilience requires further study in populations with more diverse occupations and degrees of employment.

Finally, marital status of mothers was significantly related to the goal attainment aspect of health work. Mothers who were married or living in a common law relationship reported higher family participation in goal attainment activities than mothers who were divorced or separated. However, only three of the 67 mothers in this study were divorced or separated, leaving the reliability of these findings open to question. Further, these three mothers had been separated/divorced for 3 years or less. In the initial year after separation or divorce, women experience shock and

bewilderment, followed by a two- to three-year period of emotional realignment (Hertz Brown, 1988). For most women, it is not until several years after separation or divorce that a renewed sense of competence and stable identity returns. Since the divorced/separated mothers in this study were in the initial adjustment phase following a change in marital status, it is likely that the emotional changes experienced by these mothers may have influenced their ability to participate in goal attainment activities and to promote these activities in their families.

Limitations of the Study

Limitations of the study include: the inability to make causal inferences due to the use of a correlational design; the use of a relatively homogeneous, convenience sample mothers with pre-school children that limits the generalizability of findings to families with similar characteristics; using mother's perception of health work, which may be subject to bias, as a proxy for family health work; and the use of the HOS and RS, which are newer instruments with developing evidence of reliability and validity.

Implications for Nursing Practice

According to the DHM, in order to foster healthy ways of living in families, nurses must identify factors that contribute to their health promotion efforts. These factors include health potential (strengths, motivations, and resources) and health work (problem solving and goal attainment behaviour). With this knowledge, nurses can develop programs and services that facilitate healthy living for families. The results of this study indicate that both mothers' resilience and health work promote mothers' participation in health-promoting lifestyle practices. Since mothers' resilience influences health-promoting lifestyle practices, particularly spiritual growth, nurses

should actively structure and advocate for, learning environments that foster the development of resilient personality characteristics in all family members. This is particularly important in the pre-school family where children's attitudes, values, and personality characteristics are being shaped. Familial and extra-familial factors, identified through previous research, that promote resilience should be incorporated into intervention strategies.

Health education has traditionally emphasized the nutrition (e.g. Canada's Food Guide), exercise (e.g. Participaction), and sexual health (e.g. Safe Sex) aspects of healthy-lifestyle practices. In order to enhance the spiritual, interpersonal, and stress management aspects of healthy lifestyle in family members, health promoting cognitive strategies should be incorporated into programs of family education. These strategies, which are closely related to resilience, may include positive illusion or optimism.

Participation in health work was found to positively influence mothers' participation in health-promoting lifestyle practices. To enhance healthier ways of living in all family members, supportive learning environments should be established that foster engagement in coping and development activities and further identification and development of family health potential, particularly strengths. Consistent with the view of family as a system proposed by the DHM, it is important that these learning environments incorporate mothers, fathers and children who are at an appropriate developmental stage to participate. Since mothers have traditionally been thought of as the "gate keepers" of family health, health education programs have often focused on mothers in a effort to influence family health behaviours. However, increasingly research in health education has emphasized involving the entire family in order to

promote participation in healthy lifestyle practices (Crockett, Mullis, & Perry, 1988; Nader, Sallis, Patterson, Abramson, Rupp, et al., 1989; Perry, Juepker, & Murray, 1988; Perry, Russell, Leupker, Murray, Kurth et al., 1988; Pill, & Parry, 1989).

From a theoretical perspective, mothers' resilience should have a strong relationship with health work. However, the weak relationship identified in this study is consistent with the DHM's proposition that the family, as a system, is influenced by a multitude of internal and external factors. When assessing the health potential of the family, factors that are determined to exert a small impact on health work should not be discounted. It is conceivable that the combination of many aspects of health potential may have the most pervasive influence on health work. Family strengths, motivations, and resources that have the potential for even minimally influencing health work should be identified and promoted within the family in collaboration with the nurse. In this way, the family will have access to a wide repertoire of resources needed to foster health work in different situations.

The positive influence of level of education on health promotion behaviour has been repeatedly documented in research. The influence of income on health promotion, although supported in this study, has not been consistently documented. However, there is sufficient evidence to justify nurses lobbying governing bodies in order to promote adequate education and a level of income for all families that is sufficient to sustain, if not promote, health.

Directions for Future Research

This is the first study to test the relationship between resilience, an aspect of health potential, and health work. Further studies are required to test this relationship in

other populations including families representing a wider range of socio-economic classes, developmental stages, and cultural backgrounds. In addition, the mechanism by which resilience influences health work could be examined through a qualitative study.

In order to validate the accuracy of mothers' perception of health work, studies need to be conducted that examine the consistency between family members' perceptions of health work. Of particular interest, would be the correlation between mothers' and fathers' scores on the HOS. In addition, development of a measure of family health-promoting lifestyle practices is needed to overcome the limitations of using an "individual" measure of this concept.

Further studies are required that examine the construct validity of the RS. Studies that examine convergence of the RS with instruments measuring related personality concepts such as self-esteem, self-efficacy, optimism, and hardiness are needed to validate the RS as a measure of the personality characteristic of resilience.

Summary and Conclusions

The results of this study contribute to an evolving knowledge base on family health promotion. In this study, two of the three hypotheses derived from the Developmental Health Model (DHM) were supported. Although mothers' resilience, a dimension of health potential, was only weakly related to family health work, both mothers' resilience and health work were positively related to mothers' health-promoting lifestyle practices. The minimal influence that mothers' resilience exerted on health work is consistent with the DHM view of the family as a system that is influenced by a multitude of internal and external factors and the conceptualization of health potential as a complex concept composed of many factors. Taken together, these

findings provide support for the validity of the DHM.

In addition, few demographic variables were identified that influenced main study variables. Mothers who worked full-time were found to be more resilient than mothers who worked part-time. Mothers who were married reported greater family participation in goal attainment activities, a dimension of health work, than mothers who were separated or divorced. Finally, mothers' participation in health-promoting lifestyle practices was positively related to family income, while mothers' education was positively related to the health responsibility and spiritual growth dimensions of health-promoting lifestyle practices.

Although the results of this study provide support for proposed relationships between health work, mothers' resilience, and mothers' health-promoting lifestyle practices, the results should be viewed with caution as the study sample consisted of a relatively homogeneous group of mothers of pre-school children. Replications of this study with more diverse samples are required to develop more definitive evidence of the relationships between study concepts.

APPENDICES

APPENDIX A

Information Letters to Prospective Study Participants

Letter of Introduction to Participants

**The Relationships Among Mother's Resilience, Family Health Work,
and Mother's Health-Promoting Lifestyle Practices in
Families with Pre-School Children**

Investigators: Bonnie Monteith, RN, MScN Student
Marilyn Ford-Gilboe, RN, PhD
Heather Laschinger, RN, PhD

Dear Family Members:

I am conducting a nursing research project as part of the Master's of Science in Nursing program at the University of Western Ontario. The purpose of the study is to look at how families take care of their health and the kinds of things which help them improve or maintain their health. The information learned from this study will assist nurses and other health care professionals in helping families become healthier.

I am asking your family to participate in this study. If you agree to participate, the mother of the family will be asked to complete a questionnaire. Only mothers who have physical custody of the pre-school child will be eligible to participate. In order for the results of this study to be meaningful the mother must have close physical contact with the pre-school child on an almost daily basis. Completion of the questionnaire should take approximately 20 minutes. By completing the questionnaire, you may become more knowledgeable about the health practices of your family.

If your family is interested in participating in this study, please sign the form at the end of this letter and return it to the nursery school/day care teacher/supervisor. A consent form, questionnaire, and stamped addressed envelope will be distributed to all participants. You will be asked to return the completed questionnaire in the envelope provided within one week of receiving it. Your responses on the questionnaire are confidential and you will be identified only by a number.

You are under no obligation to answer the questionnaire, however your participation would assist in the identification of factors that help families become healthier. Thank-you for your time and support. If you have any questions call me at (519) 271-6340.

Yours sincerely,

Bonnie Monteith
MScN Graduate Student

I would be willing to participate in this study by answering the questionnaire.

Mother's
Name _____ Date _____ Day Care/
School _____

Letter of Information to Participates

**The Relationships Among Mother's Resilience, Family Health Work,
and Mother's Health-Promoting Lifestyle Practices
in Families with Pre-School Children**

Investigators: Bonnie Monteith, RN, MScN Student
Marilyn Ford-Gilboe, RN, PhD
Heather Laschinger, RN, PhD

As a family with a pre-school child, you are being asked to take part in a research study to look at how families take care of their health and the kind of things that improve their health. The information gained from this study may be useful to nurses and other health professionals in helping families become healthier.

I am asking the mother of your family to take part in this study. Only mothers who have physical custody of the pre-school child will be eligible to participate. In order for the results of this study to be meaningful the mother must have close physical contact with the pre-school child on an almost daily basis.

As part of the study, each mother will be required to complete one questionnaire about you, your family, and your health practices. The time needed to complete this questionnaire is about 20 minutes. Your participation in the study is voluntary. You may refuse to answer any questions or withdraw from the study at any time. You may be assured that your responses to the questionnaire will be kept confidential and your family will be identified only by a number. The questionnaires will remain in a secure location during the study and they will be destroyed when the study is completed.

You will note there is a code number on the questionnaire. The code on the questionnaire will allow for distribution of a reminder letter in the event that you misplace the initial package. To ensure your anonymity and confidentiality, do not print or write your name on any part of the questionnaire. To further ensure anonymity: (a) all data will be entered into the computer for analysis by an independent data clerk, (b) all information obtained from the responses will be analyzed and reported as group data.

If you agree to take part in the study, you must sign the attached consent form. Keep the letter of information for your records and return the signed consent form with the questionnaire in the envelope provided within one week of receiving them. By responding to the questionnaire as part of this study, you may become more aware of the health practices of your family. If you have any questions, call Bonnie Monteith at (519) 271-6340. My faculty advisor, Marilyn Ford-Gilboe, is also available at the University of Western Ontario at (519) 661-2111, extension 6603.

Follow-up Letter to Participants

**The Relationship Among Mother's Resilience, Family Health Work,
and Mother's Health-Promoting Lifestyle Practices
in Families with Pre-School Children**

Dear :

About two weeks ago, following confirmation of your interest in participating in a research study, I distributed a package to you containing a questionnaire. If you have already completed the questionnaire, thank you for doing so. The information that you have provided is important to this study.

If you did not receive the questionnaire, please call me at (519) 271-6340 so that I may send another one to you. If you have not had time to complete the questionnaire but still want to do so, I welcome your responses as part of the study. If you have changed your mind about taking part in the study, please return the blank questionnaire in the envelop which was provided.

Please contact me if you have any further questions at (519) 271-6340.

Sincerely

Bonnie Monteith
MScN Graduate Student

APPENDIX B
Study Instruments

Resilience Scale

Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

	<u>Strongly Disagree</u>						<u>Strongly Agree</u>
1. When I make plans, I follow through with them.	1	2	3	4	5	6	7
2. I usually manage one way or another.	1	2	3	4	5	6	7
3. I am able to depend on myself more than anyone else.	1	2	3	4	5	6	7
4. Keeping interested in things is important to me.	1	2	3	4	5	6	7
5. I can be on my own if I have to.	1	2	3	4	5	6	7
6. I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
7. I usually take things in stride.	1	2	3	4	5	6	7
8. I am friends with myself.	1	2	3	4	5	6	7
9. I feel that I can handle many things at a time.	1	2	3	4	5	6	7
10. I am determined.	1	2	3	4	5	6	7
11. I seldom wonder what the point of it all is.	1	2	3	4	5	6	7
12. I take things one day at a time.	1	2	3	4	5	6	7
13. I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
14. I have self-discipline .	1	2	3	4	5	6	7
15. I keep interested in things.	1	2	3	4	5	6	7

16.	I can usually find something to laugh at.	1	2	3	4	5	6	
17.	My belief in myself gets me through hard times.	1	2	3	4	5	6	7
18.	In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
19.	I can usually look at a situation in a number of ways.	1	2	3	4	5	6	7
20.	Sometimes I make myself do things whether I want to or not.	1	2	3	4	5	6	7
21.	My life has meaning.	1	2	3	4	5	6	7
22.	I do not dwell on things that I can't do anything about.	1	2	3	4	5	6	7
23.	When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7
24.	I have enough energy to do what I have to do.	1	2	3	4	5	6	7
25.	It's okay if there are people who don't like me.	1	2	3	4	5	6	7
26.	I am resilient.	1	2	3	4	5	6	7

HEALTH OPTIONS SCALE

Families do many different things to help their members **stay healthy** or to **improve health**. Think about the typical actions **YOUR FAMILY** takes around healthy living. Consider how you manage everyday life (for example, work/school, recreation, discipline) as well as how you deal with health problems (eg. minor or major illnesses, divorce, unemployment). Think about the goals your family may have to improve healthy living. Exercising 3 times per week, spending more time together as a family, making connections with people in your community, and learning to manage an ongoing illness are all examples of health goals.

Now, indicate how much each of the statements below describes **YOUR FAMILY** by **CIRCLING** the appropriate number. There are no right or wrong answers. We are interested in what you think about your family's usual way of living as it is now, not as you think it should be.

Before you begin, please list all of the people who you consider to be a part of your family:

Person	Age	Relationship to You

Remember to answer the questions below thinking about the how the group of people you listed as your family **generally** acts.

- 1 = SD strongly disagree**
2 = D disagree
3 = A agree
4 = SA strongly agree

	SD	D	A	SA
1. We pay attention to our health practices on a daily basis	1	2	3	4
2. When we find out about some new way of improving health, we will try it to see if it works	1	2	3	4
3. The changes we try to make to improve health are usually too difficult to achieve.....	1	2	3	4
4. As a family, we talk about ways to keep healthy	1	2	3	4
5. We don't have a clear idea about what we want for our family in the future.....	1	2	3	4

1 = SD strongly disagree
2 = D disagree
3 = A agree
4 = SA strongly agree

6. Before we make decisions that will affect health, we look at all of our options	1	2	3	4
7. We make the time to learn how to improve health	1	2	3	4
8. We do not have any special health goals	1	2	3	4
9. When a solution to a health problem is not successful, we examine why it didn't work	1	2	3	4
10. We look for information that will help us keep healthy	1	2	3	4
11. Making plans to improve our health doesn't work because we live from day to day	1	2	3	4
12. The goals we set for improving health are reasonable and possible to achieve.....	1	2	3	4
13. We do not consciously set out to do healthy things	1	2	3	4
14. We are able to identify many ways of handling health problems	1	2	3	4
15. We try to do something healthy each day	1	2	3	4
16. If our health practices are not helping us stay healthy, we will try something new	1	2	3	4
17. We look for ways to improve our sense of well-being	1	2	3	4
18. If we try to make changes in our health practices, we quickly return to our usual routine.....	1	2	3	4
19. We talk about how new ways of staying healthy fit with our lifestyle before deciding to try them.....	1	2	3	4
20. We are trying to make healthy changes in areas that are important to us	1	2	3	4
21. We choose ways of dealing with health problems by discussing the pros and cons of several options	1	2	3	4

LIFESTYLE PROFILE II

DIRECTIONS: This questionnaire contains statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, S for sometimes, O for often, or R for routinely

	Never	Sometimes	Often	Routinely
1. Discuss my problems and concerns with people close to me.	N	S	O	R
2. Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3. Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4. Follow a planned exercise program.	N	S	O	R
5. Get enough sleep.	N	S	O	R
6. Feel I am growing and changing in positive ways.	N	S	O	R
7. Praise other people easily for their achievements.	N	S	O	R
8. Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9. Read or watch TV programs about improving health.	N	S	O	R
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11. Take some time for relaxation each day.	N	S	O	R
12. Believe that my life has purpose.	N	S	O	R
13. Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R

	Never	Sometimes	Often	Routinely
17. Accept those things in my life which I can not change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R
26. Eat 3-5 servings of vegetables each day.	N	S	O	R
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R

	Never	Sometimes	Often	Routinely
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counselling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

DEMOGRAPHIC QUESTIONNAIRE

Questions on this form deal with your personal and family history. This information is important and will be used to describe the group of mothers who took part in this study.

Family Membership

For each family member, please list: age, sex, and relationship to you. Remember to include yourself in this list.

	<u>Age</u>	<u>Sex</u>	<u>Relationship</u>
eg.-	8	Male	Son

Cultural/Ethnic Background

1. What are the cultural or ethnic roots of your family? _____
2. What is the primary language spoken in your home? _____
3. What is your family's primary religion? (circle one)
 - a) Roman Catholic
 - b) Protestant
 - c) Jewish
 - d) Muslim
 - e) Buddhist
 - f) no religion
 - g) other (specify) _____
4. How would you describe your racial origin?
 - a) caucasian
 - b) black
 - c) oriental
 - d) other (specify) _____

Marital History

1. What is your current marital status? (circle one)

- a) married
- b) separated
- c) divorced
- d) never married
- e) common-law

2. How long (months and years) have you occupied this status? _____

Employment History:

1. What is your current employment status: (circle one)

- a) employed full-time
- b) employed part-time
- c) unemployed

2. What is your current occupation? _____

3. What is your spouse's current occupation? _____

4. Please circle the highest educational level in years which you have completed (specify college or university if applicable)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

grade school high school 1. college graduate school
2. university

3. Please estimate your current annual families income: _____

4. What are the sources of your family income? (circle all applicable)

- a) employment
- b) social assistance (welfare, mother's allowance)
- c) disability pension
- d) relatives
- e) other (please specify) _____

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IMAGE EVALUATION TEST TARGET (QA-3)

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