THE RELATIONSHIP BETWEEN NEGATIVE LIFE EVENTS AND FAMILY FUNCTIONING IN LOW INCOME PREGNANT WOMEN

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ABSTRACT

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Families of lower socioeconomic class are more vulnerable to the pile up of negative life events (NLEs). This study, guided by the Double ABCX Model, described the relationship between frequency and impact of NLEs and perceived level of family functioning (FF) in 124 low income pregnant women. A secondary analysis of data was done using a non-experimental design. A direct relationship between the number or impact of NLEs and FF was not found. The most frequently reported NLEs were a change in finances and boyfriend problems while breaking up with a friend and death of a family member or friend had the most impact. Advanced Practice Nursing implications include strengthening existing FF, and helping families to problem solve to ameliorate the effects of NLEs. Future research should address coping as an indirect link between NLEs and FF.

Dedicated to my Heavenly Father . . . .

who has provided me with strength

And to my husband Rick . . . .

for all his love, encouragement, and belief in my abilities

And to my parents . . . .

for their support of me through all of life's challenges

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INTRODUCTION

Negative life events occur to all people, but sometimes these events can cluster over a one year time period. Negative life events (NLEs) are one type of stressful life events (SLEs). When a pile-up of SLEs occurs in a one year time period, there is the possibility of both physical and psychological deterioration (Bloom, 1985; Dohrenwend & Dohrenwend, 1973; Doswell, 1989; Rabkin & Struening, 1976; Vinokur & Selzer, 1975). Current research continues to expand the knowledge base (Cohen, Tyrrell, & Smith, 1993; Gardner, Ostrowski, Pino, Morrell, & Kochevar, 1992). Evidence supports that increased risk of physiological and psychological illness is associated with an excess number and intensity of SLEs (Bloom, 1985; Ross & Mirowsky, 1979). One study found over 20% of the variance in the number and severity of health problems could be attributed to negative life events (Gardner et al., 1992).

Various hypothetical models have been postulated about the mechanism through which adverse health changes occur (Bloom, 1985; Gardner et al., 1992; McCubbin & Patterson, 1983a, 1983b; Rabkin & Struening, 1976). Hypotheses of the life stress process include stress-strain, vulnerability, additive burden, chronic burden, and event proneness (Bloom,

1985). These models range from direct effects to indirect effects through various mediating variables. McCubbin and Patterson (1983a, 1983b) examine mediating factors in the process of adaptation to negative life events, such as the perception of the event and existing resources.

Some authors have looked at the effects of life events in pregnant women on physical and psychological status (Norbeck & Anderson, 1989; Norbeck & Tilden, 1983; Wadhwa, Sandman, Porto, Dunkel-Schetter, & Garite, 1993; Yamamoto & Kinney, 1976). Pregnancy, itself, is a period of transition and change for a woman and her family because of the profound psychological and physical changes. The arrival of a baby not only enlarges the family, but initiates major effects on the functioning of the individual and the whole family as a system (Osofsky, 1983).

When there is a pileup of negative life events within one year of a pregnancy, the question arises whether there is an impact on family functioning. This study described the relationship between negative life events (NLEs) and perceived level of family functioning (FF) in low income pregnant women.

Stressful life events (SLEs) are external events that require adaptive demands from a person or a system (Bloom, 1985). SLEs can be categorized into three types: a) desirable or positive, b) undesirable or negative, and c) ambiguous. The undesirable events (NLEs) have a greater objective impact on symptomatology and are reported by

subjects to require more readjustment than either desirable or ambiguous events (Ross & Mirowsky, 1979). Vinokur and Selzer (1975) found a systematic relationship between undesirable life events and stress related measures such as depression, anxiety, tension, aggression, paranoia, and suicidal tendency. These findings and the results from the development of the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) suggest the degree of "life stress" is best measured by negative life events (NLEs) than by either positive events or the total number of events.

Each individual may view an event from a different perspective, and the amount of impact the event makes on his or her life. For example, for a woman who wants a child, pregnancy is a highly desirable event. But it may be viewed as highly undesirable or mildly undesirable by an unwed teenager (Sarason et al., 1978). It is important to measure whether an event is considered positive or negative for the person and how much impact the event has on his or her life.

Does one gender experience more stressful life events that ultimately affect them? Some researchers found women in general experience more life changes than men (Dohrenwend, 1973), or were more profoundly impacted by those life events (Flannery, 1985; Jorgensen & Johnson, 1990). Meanwhile, others found a similar occurrence rate of SLEs between the sexes (Kessler & McLeod, 1984; Lubin & Rubio, 1985; Sarason et al., 1978; Thoits, 1987). There was not a significant difference between the number of NLEs

reported by pregnant women and their mates in a study by Mercer and Ferketich (1988).

Since a relationship had been established between SLEs and dysfunction on the individual level, the family stress literature began to take the concept of SLEs and apply it to the family system level. Family systems, as they move through the family life cycle, can experience maturational and developmental crises. According to Parad and Caplan (1969), pregnancy meets the two broad criteria for events likely to produce a crisis: a) events that are of basic importance to the system, and b) events that resist solution by familiar methods. A pregnancy within the family initiates a reorganization of the family system in the areas of structure, power, boundaries, affect or feeling tone, and family interactional patterns (Sherwen, 1987). A pregnancy can affect both individual and family goals (Rubin, 1984). Pregnancy also requires a degree of acceptance of the coming child and finding ways to "make place" for the soon to be born baby (Bright, 1992; Rubin, 1984).

Besides the NLEs experienced by the pregnant individual, the "pregnant family" (Sherwen, 1987) experiences stressors. Stressors on the child bearing family are described in three main areas: a) physical, b) psychological, and c) financial (Miller & Myers-Walls, 1983; Avant, 1988). Physical stressors include nausea, vomiting, fatigue, and other physical changes and discomforts of pregnancy to which the family must accommodate. Also in

this category are moving to a larger home or remodeling of current accommodations to prepare for the baby, and changes in sexual activity (Avant, 1988). Psychological stressors include worrying about the pregnancy outcome, and the other children in the family (if present). Concerns about being an adequate parent and the role changes can also be stressors (Miller & Myers-Walls, 1983). Financial stressors in pregnancy include out of pocket expenses for maternity clothes, prenatal vitamins, prenatal classes, and items needed to prepare for the baby such as a car seat, crib, diapers, and clothes. Indirect costs to the family can occur from loss of income due to illness during pregnancy.

Depending on a pregnant woman's perception, like any external influence, her family can be a potential source of support or stress. A study which examined partner support in pregnancy (Brown, 1986) found women reported a mean of 79% of total support coming from their partner. The remaining percent came from relatives and friends. Families might positively influence a pregnant woman by helping to facilitate better health practices such as regular, nutritious meals and keeping prenatal appointments (Ramsey, Abell, & Baker, 1986). The family unit itself can be a source of stress (Croog, 1970). A family's "overinvolvement (enmeshment) may be interpreted as lack of privacy, autonomy, and psychological space to make room for the new member" (Ramsey et al., 1986, p. 525).

It is conceptually possible that negative life events and the changes families undergo during pregnancy can have an impact on family functioning. Lavee, McCubbin, and Olson (1987) found family SLEs and transitions increased intrafamily strains which decreased family functioning and well-being. The effects of antepartal stress (defined as NLEs and pregnancy risk) was shown in both a theoretical model and empirical testing to be indirectly related to family functioning (FF) through various mediating variables (Mercer, Ferketich, DeJoseph, May & Sollid, 1988; Mercer, May, Ferketich, & DeJoseph, 1986).

The question of this relationship would be especially important to address in a low income population. Women in this population are especially at risk because research has shown people in the lower socioeconomic classes are exposed to a greater number of SLEs and NLEs (Dohrenwend, 1973; Dohrenwend & Dohrenwend, 1969; McLeod & Kessler, 1990; Myers, Lindenthal, & Pepper, 1973). Not only is exposure to the events greater, but the psychological impact of the events as evidenced by psychiatric symptoms is greater, making the low income population particularly vulnerable (Dohrenwend, 1973; McLeod & Kessler, 1990; Camasso & Camasso, 1986). Family functioning was also found to be decreased in the lower socioeconomic classes of pregnant women (Tomlinson, White, & Wilson, 1990). A third variable, although not examined in the present study, is that persons in lower socioeconomic classes have fewer resources

available to them to help deal with the SLEs (Dohrenwend & Dohrenwend, 1970; Tomlinson et al., 1990).

Statement of the Problem

Few researchers have examined the concept of SLEs in pregnancy (Mercer, 1986; Mercer et al., 1986, 1988; Mercer & Ferketich, 1990; Norbeck & Anderson, 1989; Norbeck & Tilden, 1983; Ramsey et al.,1986; Records, 1993; Smilkstein, Helsper-Lucas, Ashworth, Montano, & Pagel, 1984; Wadhwa et al., 1993; Yamamoto & Kinney, 1976). Among these, several studies were focused on birth outcomes showing a connection between SLEs and complications such as low birth weight (Norbeck & Tilden, 1983; Ramsey et al., 1986; Smilkstein et al., 1984; Wadhwa et al., 1993). Even fewer have studied specifically NLEs in pregnancy (Mercer et al., 1986, 1988; Norbeck & Anderson, 1989; Norbeck & Tilden, 1983). Likewise, only a limited number have studied family functioning during the prenatal time period (Mercer et al., 1986, 1988; Ramsey et al., 1986; Reeb, Graham, Kitson, Zyzanski, Weber, & Engel, 1986; Smilkstein et al., 1984; Tomlinson et al., 1990). Only the team of Mercer et al. (1986, 1988) purposively combined these variables in studies with pregnant women. However, their sample was not low income women. Smilkstein et al. (1984) only incidently reported the relationship of NLEs and FF in their study which focused primarily on pregnancy complications. Only two studies using either (not both) of the variables have

targeted the low income pregnant woman (Norbeck & Anderson, 1989; Reeb et al., 1986).

There exists a gap in the literature relating NLEs to family functioning (FF) in the lower socioeconomic pregnant population. The purpose of this study was to describe the relationship between negative life events and perceived level of family functioning in low income pregnant women. The Double ABCX model by McCubbin and Patterson (1983a, 1983b) formed the conceptual framework. The following research questions were addressed:

1. What is the relationship between the total number of negative life events and the perception of family functioning in low income pregnant women?
2. What is the relationship between the total negative life event impact score and perception of family functioning in low income pregnant women?
3. Is there a significant difference in perceptions of family functioning between low income pregnant women with high negative life event impact scores (≥2) and those with low negative life event impact scores (0 to 2)?

With the answers to these questions, Advanced Practice Nurses (APNs) have an increased understanding of the type of relationship NLEs have with family functioning in pregnancy. Primary health care is comprehensive involving more than just the individual pregnant woman's biological needs. APNs also address psychosocial needs and consider the importance

of the woman's family in the context of care. When the family context is assessed, especially early in the health care encounters, important data can be obtained that will help the APN plan more effective care (Mays, 1988).

Primary care focuses on health promotion and prevention (Starfield, 1992). A direct relationship between NLEs and FF would focus Family Nurse Practitioners (FNPs) on identifying early in pregnancy those patients who may benefit from interventions designed to address the negative effects of that stress on the functioning of her family. Knowing if a woman and her family are at risk for deleterious effects because of the association of NLEs and FF would influence the anticipated need for the amount and type of care during the pregnancy. One would also seek to support and enhance current family strengths to assist the woman in dealing with the NLEs she will encounter.

Conceptual Framework

The concepts of negative life events and perception of family functioning were examined for their essential components as the concepts evolved over time. NLEs and perception of FF in low income pregnant women were examined in the context of the conceptual framework of McCubbin and Patterson's Double ABCX Model (1983a, 1983b). Specific emphasis was placed on the post-crisis time period as that was the focus of the current study.

Negative Life Events

Negative life events are a subset of stressful life events because they are undesired, have a negative impact upon a person, and require adaptation. Research in the area of stress is often complicated due to differing definitions of the variables and components of the term. There is no single definition of what stress is or how it affects a person; scientists have been discussing that for decades. One definition of stress is the organism's response to stressors and stressful conditions (environmental demands). This response consists of a pattern of psychological and physiological reactions that are both immediate and delayed (Rabkin & Struening, 1976). This conceptualization is similar to that of Lazarus, DeLongis, Folkman, and Gruen (1985) because stress is defined not as merely an environmental stimulus but as the relationship between the stimulus and vulnerable person. Stress is seen as a rubric rather than a single variable, which incorporates personal and environmental variables and mediating processes such as appraisal and coping. In contrast, others argue to avoid confounded measurement, stressors should be seen merely as environmental inputs, independent of the reaction of the person or the person's state of mind (Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984). This subjective versus objective viewpoint carries into life event research.

The field of stressful life event (SLE) research started in 1949 at the Conference on Life Stress and Bodily

Disease, but began to accelerate after the work of Holmes and Rahe (1967). The early researchers used Holmes and Rahe's (1967) Social Readjustment Rating Scale (SRRS). Earlier versions were known as the Schedule of Recent Experiences (SRE) and are often used interchangeably in the literature. The prevailing conceptual framework for that scale was that life events are stressful because of the amount of change and readjustment they require. This scale assigned a universal, objective weight to each item based on the amount of change a panel of judges believed the event involved. These individual life change units when summed reflected a total life stress score which was used to determine correlations with various outcome measures.

The subjective view of stress formed a basis for the second conceptualization of the stressfulness of life events. It is not change per se that is most stressful, but the undesirability of events that is most related to psychological impairment. Vinokur and Selzer (1975) believed that since the desirability of most events may vary from person to person, the undesirability of an event must be perceived by the subject instead of predetermined by judges. Results showed that no matter which measure was used (the number of events, life change units, or self ratings of amount of adjustment), only the undesirable events significantly and consistently correlated with a variety of stress related measures (Vinokur & Selzer, 1975).

Thus stressful life events began to become conceptualized as undesirable events or negative life events (NLE).

As with all of science, this new concept took time to be fully accepted as a competing construct. Ross and Mirowsky (1979) believed that the definition one used for SLE depended on what outcome one was interested. To predict psychiatric symptomatology they analyzed 23 methods of weighing life events using both change and desirability paradigms. They found that undesirability scores predicted symptoms better than change scores, and that the most predictive and efficient undesirability score was to simply add up the number of undesirable events. However, they advocated an "effect-proportional weight" index as most predictive. This index is an objective measure where each event is weighted according to the amount of psychiatric symptoms it produces. The effect-proportional index, for unknown reasons, was never further studied in the literature. However, the undesirable event connection with symptoms and the fact that persons rate undesirable events as requiring more readjustment added to the knowledge base of negative life events.

Building on Vinokur and Selzer's work (1975) which used a modified SRE that phrased events into clearly desirable or undesirable categories, the time came for a new life events scale. Sarason et al. (1978) developed the Life Experiences Survey (LES). They stated a measure of life stress should allow for the respondents to rate for themselves whether the

event was desirable or undesirable, and should allow for each person to rate the personal impact of the events experienced. Group ratings of desirability are rejected because events may vary in desirability depending on the individual's circumstances and perceptions. The "negative change score" (based on summing the impact ratings for events recorded as negative by the subject) was most predictive of outcome. The findings of Sarason et al. (1978) agree with those by Ross and Mirowsky (1979) that viewing negative events as a separate category is more effective than creating a "balance index" (positive minus negative life events).

The evidence points to the possibility that life event stress may be most accurately conceptualized in terms of undesirability or negative life change rather than in the total amount of change (positive life events plus negative life events). Thus, for the present study negative life events were conceptualized as those stressful events that required adjustment and adaptation and were perceived by the low income pregnant woman as undesirable and having an impact. How many NLEs a person has encountered is important, but does not reveal the total picture in all situations. Also significant is the degree to which each of those events was perceived by the woman to have an impact on her life. One woman could have multiple NLEs that individually and in total have a minimal impact on her life. Meanwhile, another woman could experience only one NLE but

perceive an extremely high impact from that event on her life. The impact of the NLEs can give more information on the relationship between the event and the person (subjective component), than the numerical sum of NLEs experienced (objective component). A low income woman might report a higher impact from negative financial events than a woman who is from the upper incomes levels. Therefore, both the total number of NLEs and the woman's perception of the impact of each NLE were examined.

Family Functioning

Families can be defined and organized in many ways including by genetics (blood relations), structure (significant persons occupying a common dwelling unit), or function (those considered to be "family" by the person) (Reeb et al., 1986). For the purpose of this study, family was defined as the persons with whom the pregnant woman usually lived. If she lived alone, then for this study the woman was to conceptualize "family" as consisting of the persons with whom she had the strongest emotional ties. There are several theoretical perspectives arising from the social sciences which can be used to describe family functioning. These include the developmental, structural-functional, ecological, interactional, and the family systems approach (Mercer, 1989). The discipline of nursing borrows heavily from the social sciences. Nursing's own clear, concise definition of family functioning is still in

development. The family theories pertinent to this study are the developmental and family systems theories.

The developmental approach to families is usually based on the eight stages of the family life cycle originally described by Duvall and Hill in 1948 and updated by Duvall (1977). The family in each stage must achieve certain developmental tasks in order to grow and meet biological requirements, cultural imperatives, and attain the family's own aspirations and values (Duvall, 1977). This approach looks at family functioning from a temporal orientation, and allows comparison of families in the same life cycle stage. Family functioning is thought of broadly as achieving the developmental tasks of that life stage and moving on to a higher level of functioning. A continuous, unidirectional progression is implied, although during transitional periods from one stage to the next disequilibrium can occur and the level of functioning can decrease (Mercer, 1989).

The family systems theory is derived from general systems theory which is a very broad framework. Families are seen as open social systems with self-regulatory mechanisms, boundaries, subcomponents, and interacting and superordinate systems (Friedman, 1986). The family system is considered greater than and different than the sum of its parts. There is continual change in the family system in response to stresses and strains from internal processes as well as the external environment. Change in one part of a family system can have an effect on the total system. The

family system depends on feedback to constantly adjust and find a new level of homeostasis (Mercer, 1989).

Optimally functioning families differ from less capable or competent families with regard to dimensions of family structure (the nature of the power structure, the parental coalitions, and family members' closeness to each other), mythology (how the family views itself), goal-directed negotiation, the autonomy of its members, and the nature of family affect and affective expression (Green, Kolevzon, & Vosler, 1985). Family functioning can also be assessed by the levels of cohesion, adaptability, and communication found among the family unit (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1989).

When contrasting the theoretical perspectives on family functioning, the developmental approach is goal oriented and focuses on meeting objectives set forth by society and the family. Family systems theory is more interaction oriented. The theories are also similar. Communication and emotional/ affective support are two concepts that are inherently a part of both approaches, but especially, the family systems theory. The family system theory has a broad perspective with emphasis on examining the relationship of the family to other societal systems. The developmental theory includes the possibility of an external environment to the family, especially in the attainment of the tasks for the particular lifestage.

The Family APGAR instrument is based on a synthesis of several theoretical perspectives on family function, especially the developmental and family systems approaches. Since family functioning can have an impact on health, a medical doctor developed a screening test of five core components of family functioning in the form of the acronym APGAR (Smilkstein, 1978). The Family APGAR instrument based on these concepts is short (5 questions), easy to score, and appropriate for both nuclear and diverse family constellations (Good, Smilkstein, Good, Shaffer, & Arons, 1979). The central concepts include Adaptation, Partnership, Growth, Affection, and Resolve.

Adaptation is the ability to use resources inside and outside of the family for problem solving when a crisis stresses family equilibrium. Partnership refers to the sharing of both nurturing and decision making responsibilities by family members. Growth is the emotional and physical maturation and self-fulfillment attained by family members through mutual support and guidance. Affection stands for the loving or caring relationship present among members of the family. Resolve includes the commitment to devote time for the purpose of the emotional and physical nurturing of other family members. Resolve also often involves a decision to share space and money (Smilkstein, 1978).

The current study utilized the concepts of adaptation, partnership, growth, affection, and resolve as described

above to define family functioning. These components represent a synthesis of various perspectives on what constitutes family functioning, particularly from developmental theory and the family systems theory. Smilkstein (1978) likens these five concepts in an analogy to the body's organ systems. Each component has a unique function, yet there is an interrelationship between the parts and the whole system. Because of that scope, family functioning is a variable that was conceptualized as having five components, all of which interrelate to make up the whole. For the purpose of this study, family functioning was defined as adaptation, partnership, growth, affection, and resolve.

Double ABCX Model

The concepts of negative life events and perception of family functioning fit well into the family stress framework by McCubbin and Patterson (1983a, 1983b) known as the Double ABCX Model of Adjustment and Adaptation (see Figure 1). This model extends Hill's ABCX family crisis model (1949) longitudinally to a post-crisis time period.

> The double ABCX adds post-crisis variables to the original ABCX model in an effort to describe additional concurrent stressors the family may be experiencing which would affect recovery from the original crisis, the new as well as previously existing resources used by families in the recovery process, their perceptions and evaluation of their post-crisis situation, and the outcome, or degree of adaptation (Mederer & Hill, 1983, p. 49).

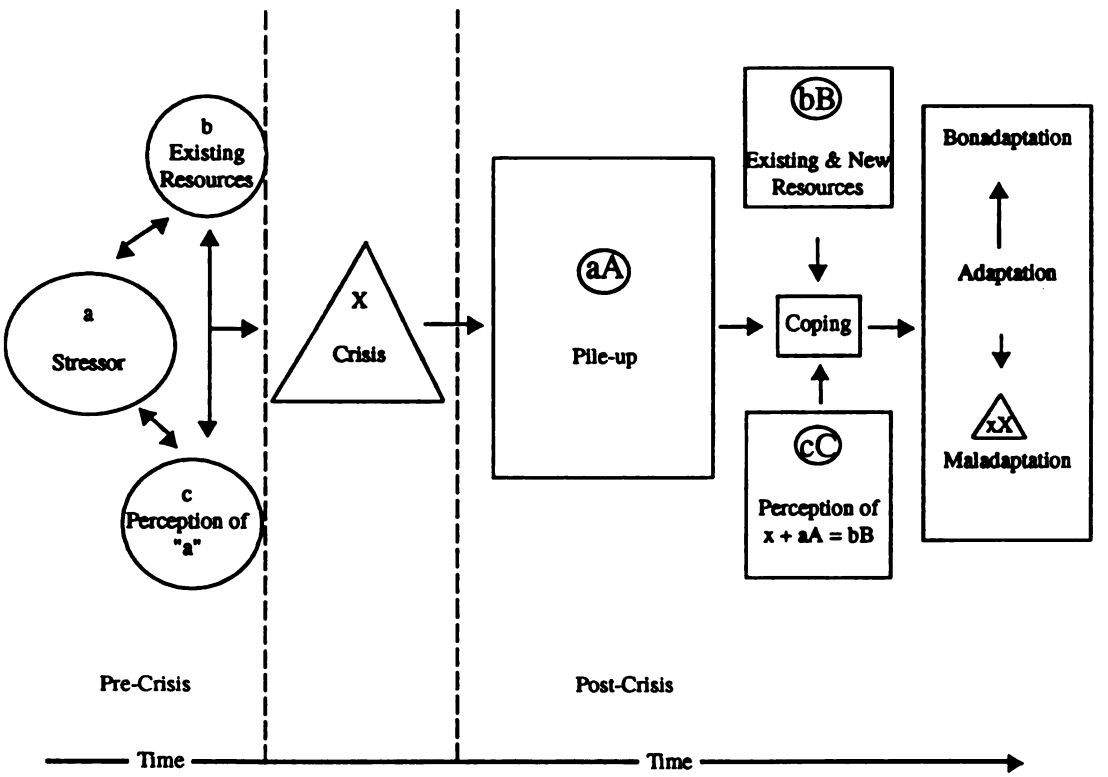

Figure 1. The Double ABCX MOdel by McCubbin and Patterson (1983a, 1983b).

The Double ABCX Model has been tested and applied to several situations by various researchers (Florian & Dangoor, 1994; Lavee et al., 1987; Lavee, McCubbin, & Patterson, 1985; Orr, Cameron & Day, 1991; Patterson & McCubbin, 1983). Out of the model's conceptual background was born the Family Inventory of Life Events and Changes (FILE) tool (Patterson & McCubbin, 1983).

The Double ABCX Model will be explained in the following, with the concepts related to this investigation integrated in the description. While the model posits causality due to the direction of the arrows and flow of concepts, the present study only examined the relationship between certain components. Figure 2 presents the framework applied to low income pregnant women being used for this study. The bolded and shaded portions in the model in Figure 2 are those concepts which were the focus of this study. For contextual clarity, the entire model will be presented in both the pre-crisis and post-crisis time periods. However, the focus of this study was on the "pileup" and "family functioning" aspects of the post-crisis time period.

Pre-crisis Time Period

The first half of the Double ABCX model addresses the precipitating and modifying factors that contribute to the development of a family crisis. The pre-crisis time period was not the focus of the current study, except to identify the stressor of pregnancy.

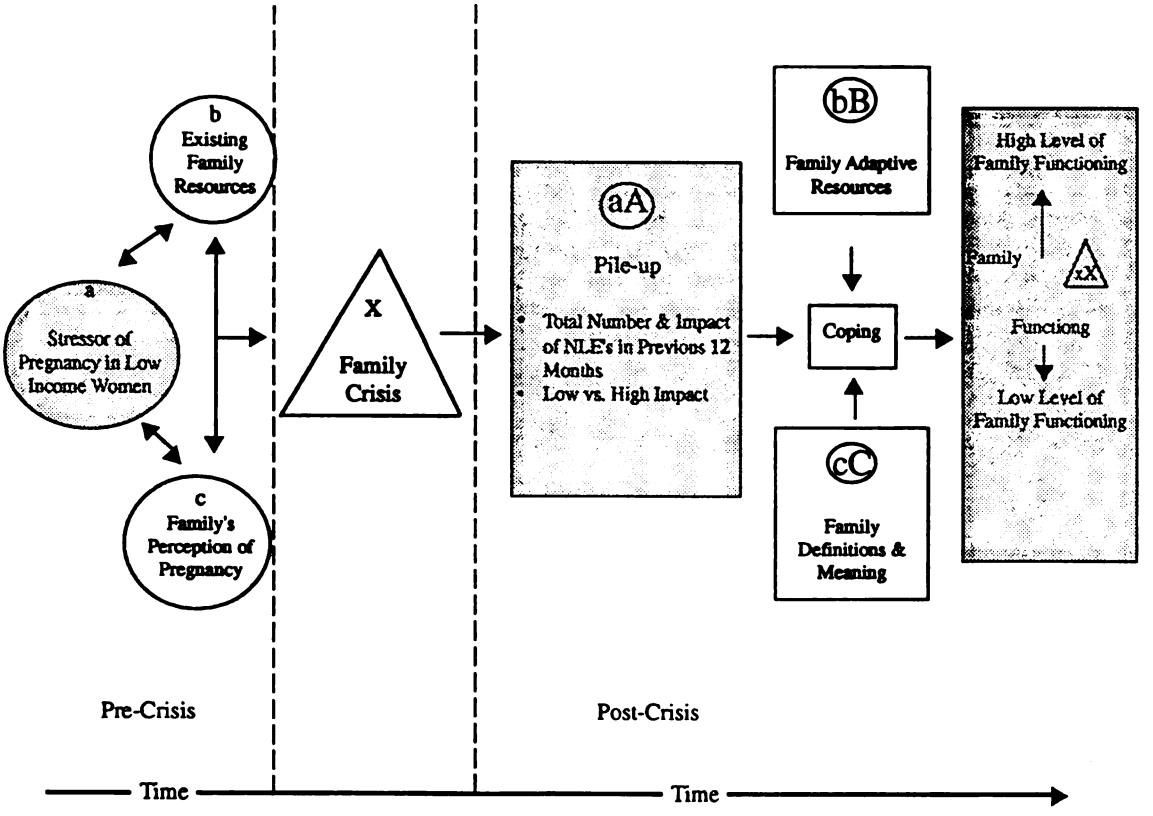

Figure 2. Application of the Double ABCX Model (McCubbin & Patterson, 1983a, 1983b) for the Present Study.

Stressor of pregnancy in low income women (a factor). In this study, the pregnancy of a low income woman was seen as the stressor. The double headed arrows around the stressor display the reciprocal relationship this factor has with the existing family resources and perception of pregnancy. The combination of the stressor of pregnancy, existing family resources, and the family's perception of pregnancy impact the occurrence of a family crisis as shown by the connecting one way arrows. Stressors are defined as life events or transitions that impact the family unit and produce, or have the potential of producing, a change in the family social system. The change may be in various areas of family life, including patterns of interaction, roles, boundaries, values, or goals (McCubbin & Patterson, 1983a, 1983b).

Associated with stressors are hardships which are the demands placed on the family unit specifically associated with the stressor event. An example of a hardship in pregnancy could be the additional finances required for prenatal medical care. This is particularly an issue for low income women. Since stressors can include accession or change in family structure by adding a member (McCubbin & Patterson, 1983a), pregnancy itself can be seen as a stressor event. This leaves open the assumption that there could be other concurrent stressors besides pregnancy with which the family is dealing, that could also lead to a crisis.

Aspects of the stressor of pregnancy can be viewed from several angles (McCubbin & Patterson, 1983a). The origin of the stressor (pregnancy) occurs within the family system with its impact extending to all family members. The onset of the stressor emerges gradually, as opposed to a sudden change. The length of adjustment to the pregnancy is over a longer period of months. Sometimes the pregnancy can be expected, but it can also fall into the category of occurring unpredictably at random.

Existing family resources (b factor). The double headed arrows in the model demonstrate the reciprocal relationship between this resource factor (not examined in the present study), the stressor of pregnancy, and the family's perception of the pregnancy. Resources are those family capabilities which prevent an event or family transition from creating a crisis (McCubbin & Patterson, 1983a, 1983b). Early family research showed that family integration including affection, common interests, and economic interdependence and family adaptability were resources. Other resources include subjecting personal aims to family goals, agreement about family roles, and satisfaction with the family meeting the emotional and physical needs of its members. Resources can also be financial, and the low income woman and her family will have fewer resources in that area.

Family's perception of pregnancy (c factor). Every culture and society can have definitions of what pregnancy means, especially in regard to the age and marital status of the woman. However, this factor specifically looks at the family's subjective definition given to the pregnancy and its related hardships. The pregnancy might be viewed as a negative life event by the family and perceived as anything from a challenge to an uncontrollable stressor that will lead to the family demise. If the family experienced a previous pregnancy, they may draw from that experience in defining this pregnancy event (McCubbin & Patterson, 1983b).

The family's perception of pregnancy is interrelated with the stressor of pregnancy and existing family resources as shown by the double arrows. Family perception together with the stressor of pregnancy and family resources has a relationship with the family crisis variable as shown by the one way directional arrow in the model. The focus of this study did not address the family's perception of pregnancy, however, the individual's perception of the pregnancy as "good" or "bad" was noted.

Family crisis (x factor). Stressor events and hardships can lead to tension and stress, which in turn can lead to a crisis. The combination of the stressor of pregnancy, existing family resources, and the family's perception of the pregnancy have a direct effect on the possible entry of a family into a crisis situation as shown by the single headed arrow leading to the "x factor".

> Family stress (as distinct from stressor) is defined as a state which arises from an actual or perceived imbalance between demand (e.g., challenge, threat) and capability (e.g., resources, coping) in the family's functioning. It is characterized by a nonspecific demand for adjustment or adaptive behavior (McCubbin & Patterson, 1983a, p. 10).

Crisis occurs when a family is unable to restore stability and there is a continuous pressure to make changes in the family's structure or interaction pattern (McCubbin & Patterson, 1983a, 1983b). However, stress does not always necessarily lead to a crisis.

There has been a debate in the literature over the past 40 years as to whether the transition to parenthood should be considered a "crisis" since this is generally a normal event. This is reviewed by Miller and Myers-Walls (1983) and discussed by others (McCubbin, Joy, Cauble, Comeau, Patterson, & Needle, 1980). One way of looking at this is as a normal crisis of transition. This type of developmental crisis carries no label of deviancy or social stigma that can often be attached to crises in the family crisis literature (Mederer & Hill, 1983). For this study the conceptual view of family crisis utilized was the normal developmental event stress present with the transition of a pregnancy. This factor was not the focus of the current study. From the sample used in the present study, it is impossible to distinguish whether or not the woman's family has entered a crisis situation distinct from the normal crisis of transition. Much of the literature viewing

pregnancy and transition to parenthood as a time of crisis looks only at the birth of the first child, versus also viewing subsequent pregnancies. This study did not distinguish between whether this is a first or subsequent child.

It is generally well accepted that pregnancy has an impact on families. "All pregnant families experience a degree of stress, anticipation, and change involving intrapersonal, interpersonal, and intrafamily boundaries and relationships" (Mercer et al., 1988). Therefore based on McCubbin's definition of a crisis including a constant pressure to make changes in family structure and interaction, and the fact that some have conceptualized the transition to parenthood as a crisis, families will be assumed to move to the crisis state (x factor) in this model.

Post-crisis Time Period

The second half of the Double ABCX Model addresses how a family recovers over time and learns to adjust and adapt to the transitional crisis of pregnancy. The post-crisis time period was the focus of this study, specifically in the two areas of Pile-up (aA factor) and Family Adaptation (xX factor).

Pile-up (aA factor). The pile-up of negative life events in the post-crisis time period was one of the variables in this study. As shown in the model by the directional arrow, it follows the family crisis of

transition to pregnancy. The pile-up of NLEs is also related to the concept of coping indicated by the one way arrow.

Because a family's needs, demands, development, and crises occur over a period of time, a family rarely deals with one stressor at a time. These stressors can emerge from individual family members, the family unit, and/or the community. McCubbin and Patterson (1983a, 1983b) describe five types of stressors that can contribute to a pile-up in the family system: a) stressors and hardships, b) normative transitions, c) prior strains, d) consequences of family efforts to cope, and e) intrafamily and social ambiguity. Negative life events fit into the model at this point. The greater the number of NLEs in the year prior to the pregnancy, the more "pile-up" is experienced. NLEs can be viewed as falling into any one of the above five categories of stressors.

The stressor of pregnancy will have hardships associated with it that can increase or intensify the difficulty the family faces. Examples of this are the nausea and fatigue of the first trimester and the lack of ability to sleep well during the third trimester. These hardships can impact the woman's role performance in the family unit. Another example is the pregnant woman will need to draw to some degree on the family's financial resources to meet her needs during pregnancy. This further drain on the already limited financial resources of the low

income pregnant woman and her family can intensify the financial difficulties the family is already experiencing.

Over time, a family experiences normative transitions as its individual members grow and develop. Developments such as the desire for independence and transition to adulthood of family members, growth and maturation of children, marriage and changes in personal relationships all occur simultaneously, but independently of the initial stressor. The pregnant woman might be dealing with career, employment or school goals concomitantly. Perhaps there are other changes as well such as the death of grandparents or another birth in the family.

A third area of pile-up stressors are prior strains. These might be unresolved hardships from earlier transitions or stressors, or strains inherent in ongoing roles. The pregnant woman might be experiencing parent-child conflicts with other children. Perhaps there are unresolved feelings or strains from marital or other intimate relationships. Economic situations such as financial debt and angry creditors can be prior strains that impact the present. The low income pregnant woman experiences both prior and present economic strains.

Stressors can arise from consequences of how the family attempted to cope in the past or present. Did the family reject a previous member who became pregnant out of wedlock? If family roles were adjusted in previous coping efforts, did that cause new problems?

The fifth area relates to ambiguity. Since change produces uncertainty about the future, there may be concerns of how the unborn baby will be accepted within the boundaries of the family system. Ambiguity can arise regarding how the low income family can afford to support another person. Or ambiguity might be related to pregnancy outcome, especially if there was a previous pregnancy loss or the woman is uncertain about whether to abort the baby, put the child up for adoption, or raise the baby herself. If society fails to offer guidelines for families dealing with pregnancy crises (e.g., teenage pregnancy or noninvolvement by the father of the baby), then social ambiguity can be an added stressor.

Family adaptive resources (bB factor). Family adaptive resources impact coping as demonstrated by the directional arrow in the Double ABCX model. However, this factor was not a part of the present study. The families capabilities to meet demands arise from three sources of resources: a) personal, b) family system's internal resources, and c) social support. Personal resources of family members are a) financial, b) educational (contributing to cognitive ability, realistic appraisal of the situation, and problem solving), c) health, and d) psychological (self-esteem and mastery) (McCubbin & Patterson, 1983a). The financial resources are limited in the low income women in this study, as well as the educational resources.

Family system internal resources are characteristics of the family such as cohesion, adaptability, flexible role relationships, and shared power (McCubbin & Patterson, 1983a). At the community level, social support resources inform the family that they are loved and cared for, esteemed and valued, and belong to a network of mutual obligation and understanding (Cobb, 1976).

Adaptive resources can also be categorized into a) existing resources, and b) expanded family resources. Existing resources are already part of the family's repertoire to minimize the initial stressor's impact. These include the family's ability to nurture its members, shared values, communication patterns, friendships, and religious involvement. Expanded resources are new resources strengthened or developed due to the additional demands on the family. During pregnancy this may involve seeking out prenatal education classes, and for the low income woman, involvement with the Women, Infants, and Children (W.I.C.) and the Maternal Support Services (M.S.S.) programs through the government. The family might need to investigate new resources for child care arrangements, or draw on expanded kin for support. New resources in the family may involve a reallocation of responsibility, such as a father, brother, husband, or significant other helping with heavy lifting or physically demanding jobs during pregnancy.

Family definition and meaning (cC factor). This factor, although not in the present study, is related to

coping as illustrated by the one way arrow in the model. The cC factor refers to the new meaning the family gives to the whole crisis situation. The family definition and meaning consists of the sum of the family's perception of the crisis, the pile-up of the number and impact of negative life events, and the family's adaptive resources. McCubbin and Patterson (1983a, 1983b) refer to three results of this redefinition: a) By clarifying the issues, tasks, and hardships, they are seen as more manageable and responsive to problem solving efforts, b) the intensity of the emotional burdens associated with the crisis are decreased, and c) the family members are encouraged to carry on with their fundamental tasks of promoting social and emotional development among each other. The problem pregnancy can be redefined to be an "opportunity for growth" or "the Lord's will for us".

Coping. The concept of coping forms a bridge between the pile-up of negative life events, family adaptive resources, family definition and meaning, and the final concept of family functioning. This is illustrated in Figure 2 by the three directional arrows pointing towards the central concept of coping, and the single arrow pointing away from coping and towards family functioning. Again, the present study examined only the relationship between the pile-up of NLEs and family functioning (visualized through the concept of coping in the model), and does not imply causality.

McCubbin and Patterson (1983b) refer to five areas the coping efforts are directed towards: a) avoiding and/or eliminating stressors and strains, b) managing the hardships that arise, c) maintaining the family system's morale and integrity, d) acquisition and development of resources to meet demands, and e) implementing structural changes in the family for the accommodation of new demands.

Family functioning (xX factor). The second area of focus in this study was the variable of family functioning, as indicated by the bold and shaded type in the model. This variable is the synthesis of the family's efforts in the post-crisis situation. In the present study, adaptation in McCubbin and Patterson's Double ABCX model (Figure 1) is equated with family functioning as defined by the five components of adaptation, partnership, growth, affection, and resolve. The way the current study defines and conceptualizes family functioning is consistent with the way McCubbin and Patterson conceptualize adaptation (1983a, 1983b).

Three elements of consideration in family functioning are a) the family member, b) the family system, and c) the community in which the members and family unit are a part (McCubbin & Patterson, 1983b). Family functioning is "achieved through reciprocal relationships, where the demands of one of these units are met by the capabilities at another, so as to achieve a 'balance' simultaneously at two primary levels of interaction" (McCubbin & Patterson, 1983a,

pp. 11-12). The first level is the member to family fit. The demands of a family member due to her pregnancy may exceed the families ability to meet those demands, resulting in an imbalance, which the family must resolve. The second level is to achieve balance between the family and the surrounding community. The work community often competes with the family for commitment and involvement which can result in stress (McCubbin & Patterson, 1983b).

In reality, there will never be a perfect fit or balance between these levels. Successful functioning from the family's perspective has to do with a mindset and acceptance that they did the best they could do under the circumstances (McCubbin & Patterson, 1983b). Families need to establish a balance in recognizing what things are under their control, and what things they will just have to trust to work out all right. However, a family's perception of successful functioning may not always be accurate. In fact, what a family considers to be successful or adaptive functioning may in reality be maladaptive functioning.

Thus, functioning can be viewed as a continuum of outcomes resulting from family efforts to achieve balance, as illustrated in the model by the vertical arrows. In this study, the perceived level of family functioning is from the perspective of the low income pregnant woman. On the positive end is a high level of family functioning. This is characterized by a balance at the two levels of functioning which result in a) a maintenance or strengthening of family

integrity, b) enhancement of member development and family unit development, and c) maintaining family independence and sense of control over environmental influences (McCubbin & Patterson, 1983a, 1983b). High levels of family functioning can be compared to the family functioning definition by Smilkstein (1978) and his Family APGAR. Smilkstein's partnership and resolve components are aligned with the concept of integrity. Promotion of individual and family unit development coincide with Smilkstein's concepts of growth, affection, and adaptation. In this study, high levels of family functioning correspond to bonadaptation in the original Double ABCX model (see Figure 1). Patterson, McCubbin, and Warwick (1990) appear to use the term family functioning to refer to family adaptation when their Family Adjustment and Adaptation Response Model (extension of the Double ABCX model) is applied to families with children having cystic fibrosis.

A low level of family functioning is at the negative end of the continuum. This is characterized by a continued level of imbalance at either of the two levels of functioning, or else reaching balance at both levels but at a price. The price paid could be the following: a) deterioration of family integrity; b) deterioration or curtailment of a family member's health or development, or of the well-being of the family unit; and/or c) decline of family independence and autonomy (McCubbin & Patterson, 1983a, 1983b). Conversely, a low level of family

functioning is associated with maladaptation in the original Double ABCX model (see Figure 1). A point to keep in mind is that any form of family functioning can have both short term and long term consequences. What may appear functional in meeting a family's immediate needs, may in the long run turn out to be maladaptive and result in a lower level of family functioning. Thus the ultimate focus should be on the long term, and achieving a high level of family functioning that continues to meet the needs of the family system over time.

Review of Literature

The interrelationship of NLEs and FF in the literature will be addressed both in the pregnant and non-pregnant population. What is known about NLEs in pregnancy, and what the literature reports about FF in pregnancy will be discussed. Additionally, a critique of the literature will point out methodological and conceptual concerns, as well as the current lack of knowledge relating to these concepts.

Relationship of Negative Life Events and Family Functioning in Pregnancy

There exists an extreme paucity of literature that directly addresses the relationship in pregnancy between negative life events and family functioning. The relationship between the two concepts in pregnancy was examined in three articles, one of which poses a theoretical relationship (Mercer et al.,1986), and the other two which empirically test the relationship (Mercer et al., 1988;

Smilkstein et al., 1984). Mercer and colleagues devised a theoretical model in 1986 based on the literature which predicted the effect of antepartum stress on dyadic relationships and FF (as defined by Smilkstein, Ashworth, & Montano, 1982; Roberts & Feetham, 1982). Six stages were identified in the model affecting FF. It was hypothesized that antepartum stress (defined as NLEs plus pregnancy risk) indirectly influenced family functioning through the following intermediary pathways and variables: a) childbirth risk; b) self-esteem, health status, and social support; c) sense of mastery; and d) depression and anxiety.

The theoretical model was tested in 1988 as reported by Mercer et al. Negative life events were measured by Norbeck's (1984) Life Event Questionnaire (LEQ), however, it is not clear how the instrument was scored. Family functioning was measured by the Feetham Family Functioning Survey (FFFS).

Four groups were assessed: low and high risk women during their pregnancy, and the male partners of the high and low risk women. The complex model for low risk women will be discussed first. "Low risk" referred to women who attended the general obstetric clinic, had no chronic diseases, and may have had only mild symptoms of pregnancy-induced disease, which responded to routine management. Negative life events were linked to family functioning through five mechanisms, all of which are indirect relationships of varying lengths. First, NLEs affected

perceived social support which in turn affected FF. The second connection shows NLEs related to depression which is connected to FF. In the third mechanism, NLEs affected health perception which had an impact on depression, which is then correlated with FF. The fourth mechanism has a influence of NLEs on sense of mastery, which subsequently impacts depression, which is associated with FF. The final pathway has NLEs linked to the chain of self-esteem, sense of mastery, and depression with family functioning at the other end.

The model for high risk women is much simpler. Negative life events indirectly affected family functioning through only the single variable of sense of mastery. High risk women were found to have less optimal levels of FF compared to low risk women. For the male partners of both the low risk women and high risk women, negative life events had a direct effect on FF.

The research of Mercer and colleagues (1986, 1988) was well-planned and executed. The theoretical framework was explicitly stated as a family developmental approach. Mercer and colleagues examined FF from both the woman and her partner's perspective. The differences the authors found between low risk women and their partner's ratings of FF were not large, and the fact they reached statistical significance may be an artifact related to the larger sample sizes (Mercer et al., 1988). The sample totaled 593 subjects including 218 low risk women and 147 partners of

low risk women, 153 hospitalized high risk women and 75 partners of high risk women. The sample was not a low income sample, as 35% of the total sample had some college education, and 20% had a graduate or professional degree.

The limitation of the study is related to their definition of family which included the mother, father, and unborn infant and dyads composed of these individuals. What was neglected was consideration of other children, sibling relationships, or whomever else the respondents considered part of the family. The study for practical purposes was limited only to married couples, or if unmarried, the couples were living together and planning to parent together. Thus it was not inclusive of non-traditional arrangements such as single parenting, or women who no longer had partners involved in the pregnancy. The research by Mercer et al. (1988) was focused on the effect of antepartum stress on family functioning, and the concept of negative life events was only one component of the definition of antepartum stress.

The only other researchers who examined the relationship of life events to family functioning in pregnant women was the team of Smilkstein et al. (1984). However, compared to the study by Mercer et al. (1988), the conceptualization was not "negative life events", rather the amount of objectively determined life change units based on responses to the Schedule of Recent Experiences (SRE) by Holmes and Rahe (1967). Two periods of life events were

examined: a) the year preceding the pregnancy, and b) life events during the pregnancy. Smilkstein and colleagues found a direct negative correlation between life events during pregnancy and family functioning (defined by the Family APGAR). A unanticipated positive relationship was found between higher life event scores prior to pregnancy and increased levels of family functioning. Higher levels of life event change prior to pregnancy was also associated with higher reported levels of life change during pregnancy.

In contrast to the work of Mercer et al. (1988), the focus of the study by Smilkstein et al. (1984) was not on either of the life event or FF variables in relation to each other, those results were only incidently reported. The main objective of Smilkstein's research was the relationship between three psychosocial risk factors (life events, family functioning, and social support) and pregnancy and postpartum complications. Thus limited information is detailed on the relationship of life events and FF.

Limitations of the study by Smilkstein and colleagues (1984) include a lack of detailed methodological information such as the point in pregnancy when the instrument of the first SRE or the Family APGAR was administered. Likewise, it is not clear if only one Family APGAR score was obtained that covered both pre-pregnancy and pregnancy time periods. If so, how can a comparison be made between two periods of life events with one period of family functioning? Also, the scores for family functioning were dichotomized into two

levels: a) "good FF" based on scores of 10 out of 10 on the Family APGAR, and b) "modified FF" based on scores less than 10. This separated their sample into two-thirds with good FF and one-third with modified FF. By utilizing a three option response on the APGAR versus a five option response, and by subsequently transferring that information to categorical variables, less specificity is possible in the analysis. The significance of the findings are limited to a liberal alpha level of 0.15 "because of interest in any trends that might prove important in a larger study" (Smilkstein et al., 1984, p. 318). The convenience sample also had an overrepresentation of students. The research by Mercer et al. (1988) had a stronger connection to a theoretical base. Smilkstein's team only minimally made a reference to the theoretical framework of Hill's ABCX Model, but did not proceed to flesh out the relationship of their study to that framework.

The research literature thus shows a deficiency of any studies that specifically examine the direct relationship between negative life events and family functioning in pregnant women. Information is not available regarding how a pregnant woman perceives the events in her life from previous year (especially those events conceptualized as negative which can also have varying levels of personal impact), and how those variables relate to her perception of family functioning.

Relationship of NLEs and FF in a Non-pregnant Population

Mercer and Ferketich also extended their research one step further with a follow up of their sample to the postpartum time period (1990). Empirical models indirectly relating antepartum stress to family functioning were created with multiple intervening variables. A few other studies examined the relationship of the study variables in a nonpregnant population (Failla & Jones, 1991; Lavee et al., 1987). However, these other researchers did not directly address NLEs as a subset of stressful life events (SLEs) in the same conceptual way as this present study or as Mercer and colleagues (Mercer et al., 1988; Mercer & Ferketich, 1990) defined the events. In addition, only the number of events was analyzed. No effort was made to distinguish if the participant perceived the event to be positive or negative or the degree to which the event impacted the respondent's life. The data will be presented with the definition for stressful life events that was used in each study.

Failla and Jones (1991) studied family stress and FF among families with children who had developmental disabilities. The authors found higher scores on the Family Stress Index (an adaptation of the FILE tool which looks at 10 life events) correlated with less satisfaction with family functioning (as measured by the Feetham Family Functioning Survey). Family functioning was also associated

with the concept of hardiness, an expanding area of research dealing with intervening variables in the response to stress (Failla & Jones, 1991; see also Bigbee, 1992). The Failla and Jones study only examined mothers on the premise that as primary care providers mothers may be most cognizant of family life events. The present study also focused on the soon-to-be mother's perspective.

The relationship between stressful life events and family functioning was investigated in a study by Lavee et al. (1987). The Family Inventory of Life Events (FILE) instrument was utilized. The FILE measures a) "stressful life events" (the number of nonnormative events such as losses or illnesses), b) "normative transitions" (number of seemingly normative changes), and c) "intrafamily strains" (number of changes in family interaction and role performance resulting in interpersonal tensions and role strains). The present study's definition of negative life events can fit into a combination of the three above categories. Family stressful life events and normative transitions were not shown to have a direct affect on "family well-being". Rather the events increased intrafamily strains, which in turn negatively affected family well-being.

One problem in the study by Lavee et al. (1987) is that the authors failed to directly define the term "family functioning" used in the title. From the article the usage of the term "family functioning" appears to be equated with

"family well-being". However, the instrument used to measure family well-being (an 11 item scale called Quality of Life) did not measure family functioning as most commonly defined, even by the authors themselves in previous research. Instead the tool measures satisfaction in the areas of health, work, finances, and the community, as well as in the family. This leads one to seriously question what the results truly mean.

Negative Life Events in Pregnancy

Pregnant women did not report more NLEs then their mates (Mercer & Ferketich, 1988). Stratified by age groups, the 20 to 29 year olds reported the most life change, both of positive and negative events (Mercer, 1986).

Pregnancy is considered a potentially stressful event and is found on most life event lists, but rarely with the ability for the woman to define for herself whether it is a positive or negative event. Low income women from Los Angeles County were assessed by racial and ethnic groups for comparison on family formation and contraceptive practices (Radecki, 1991). For whites, 32% of the pregnancies were intended, compared to 26% for blacks, and 40.6% for Hispanics. Thus the majority of pregnancies in this study of low income women were unintended, and conceivably a stressful life event.

Mercer (1986) found that out of 294 post-partum women (one to two days post-delivery), 93% reported their pregnancy as a good event, 3% viewed it negatively, and 4%

failed to check pregnancy on the list. The second most frequently reported event in the past year was marriage, with 41% seeing the event as good, and 1% as a bad event. A major change in eating habits was good for 43% of the women, bad for 16%, and not seen as a change by 41%.

Among pregnant women, both the category of SLEs and the subcategory of NLEs have been found to relate to several variables including social support, anxiety, depression, and low self-esteem (Norbeck & Anderson, 1989; Norbeck & Tilden, 1983). Prenatal stress (partially conceptualized as life events) was also associated with a decrease in birth weight independent of biomedical risk (Wadhwa et al., 1993; see also Ramsey et al., 1986). Women with high risk pregnancies were found to report greater NLE stress scores (Mercer & Ferketich, 1988).

Women in another study reported more SLEs (as defined by the SRE) during pregnancy than prior to pregnancy (Ramsey et al., 1986). However a major limitation of this study is that both pre-pregnancy events and pregnancy events were measured at the same occasion, thus possible distortive effects of recall and time effects on perception come into play.

The work of Ramsey et al. (1986) only looked at numbers of life events and did not categorize them into positive or negative events, or examine their impact on the subject. Wadhwa et al. (1993) separated the frequency of events from perceived severity, but did not examine perception of

desirability for each event. A few researchers did categorize the events to determine the woman's perceived negative life events and the amount of impact (Norbeck & Anderson, 1989; Norbeck & Tilden, 1983; Mercer et al., 1988). However, only Norbeck and Anderson (1989) were clear that the NLE impact scores were used in the analysis.

Family Functioning in Pregnancy

Several studies have looked at FF in pregnancy. Cervera (1994) examined families with unwed teenage daughters experiencing a pregnancy. For some families, anticipation of the baby was a crisis, and the family changed and reorganized themselves. As operationalized by the FACES instrument, half of the families in the sample increased FF by becoming more cohesive, but no change was seen in the adaptability measurement. The study design has some weaknesses however, the sample size was small (N=16), there was no control group, and only white intact families were studied, limiting generalization.

The relationship between family dynamics and several sociodemographic characteristics in pregnant women was addressed by Tomlinson et al. (1990). Family dynamics was specifically equated with FF by the authors and was measured by constructs similar to FF constructs: individuation, mutuality, flexibility, stability, communication, and role reciprocity. Higher socioeconomic status (SES) families showed higher levels of FF in all areas except role reciprocity. The authors suggest the increased FF in higher

SES families may be due to greater resources of income, higher educational attainment, and more living space. Also, the families may be able to access resources more effectively. Because they may have been socialized to use options, this technique may have been applied internally to problem solve family issues.

Tomlinson et al. (1990) found no family functioning differences in pregnant women related to race, maternal age, or parity status of the woman. However, married families had higher levels of family functioning, irrespective of socioeconomic status. The limitation in the study was the definition of family: a psychosocial unit composed of two or more adults who have a commitment to each other and live together. This would exclude a single woman living alone with a child, as well as raise the issue of whether a family is just those people who live with the respondent.

Family functioning also can be viewed in pregnancy as the independent variable. When operationalized using FACES - II and the Family APGAR, low FF significantly contributed to the infant's low birthweight, especially through the constructs of enmeshment and disengagement (Ramsey et al., 1986). When all other variables were held constant, family enmeshment contributed 9% of the variance in birthweight. The authors suggest this supports the concept that families have an effect on the baby even before the birth event.

Critique of Literature

Conceptual and methodological shortcomings of various studies were described as the results of the research were presented. Despite a common fault in the general literature where theoretical frameworks are not identified, the studies reviewed here at least identified the conceptual basis for the research with one exception (Wadhwa et al., 1993). However, the degree to which the framework was described or operationalized varied widely, with some merely making a single statement of the framework's name (Cervera, 1994; Norbeck & Anderson, 1989). A few studies have connected their research to theoretical frameworks developed by McCubbin and colleagues (Failla & Jones, 1991; Lavee et al., 1987), similar to this present study which also uses McCubbin and Patterson's conceptualizations as a framework (1983a, 1983b).

Conceptual problems are related to either unclear definitions of terms or incongruencies between conceptual definitions and the tools used to operationalize them (Lavee et al., 1987). Families were defined in numerous ways, some with narrow conceptualizations, and others with broader definitions reflecting the changes in society. Whall and Loveland-Cherry (1993) advocate the need to make precise and easily evident the researcher's definition of the family so that clearer comparisons of results can be made (e.g. meta-analysis).

Family functioning is rarely conceptually defined, but rather the reader must infer the meaning from the choice of instrument used. The most frequently used tools are FACES in its various versions and its Circumplex model, the FFFS by Roberts and Feetham (1982), the FILE instrument, and Smilkstein's (1978) Family APGAR. This multi-definition term of "family functioning" may be a consequence of the multiple discipline's perspectives who investigate the phenomenon (sociology, family ecology, developmental psychology, family stress theory, medicine, and nursing, among others).

The stressful life event literature contains multiple ways to view life events, however the concept of life events utilized is rarely explicitly defined. Often it is not clear whether the particular study examines the broader category of stressful life events or the narrower category of negative life events. Thus the aspect of life events under consideration can not be easily determined until one examines the scale used to measure the term. And then the reader must have a prior knowledge of the instrument. Some use the term stressful life event synonymously with NLEs or in combination with resulting hardships. This leads to methodological problems of confoundedness (Lazarus et al., 1985; Tausig, 1982). Scales that have been repeatedly shown to have serious methodological shortcomings, such as the SRE by Holmes and Rahe (1967), are still being used to study

specific populations like pregnant women (Ramsey et al., 1986) when much better tools are available (Norbeck, 1984).

Middle and upper class subjects are often used in studies examining the relationship between NLEs and FF (Lavee et al., 1987; Mercer et al., 1988). Socioeconomic information is not explicitly stated in other research (Smilkstein, 1984). Only two studies of pregnant women using either of these variables have specifically targeted low income women (Norbeck & Anderson, 1989; Reeb et al., 1986).

Therefore, the literature shows a need for research that is conceptually based and explicitly defines the terms and variables studied. The research should use instruments that are designed and tested among specific populations to make sure they capture the realm of SLEs found in that group, and allow for the respondent's perception of undesirability (NLEs) and impact of the event to be measured. The subject's perception of level of family functioning is a worthy dependent variable to study as that variable can impact upon a family system, especially in pregnancy (Schmidt, 1983). And lastly, research is missing in the area of low income pregnant women, who are more vulnerable to the effects of NLE based on both socioeconomic status (Dohrenwend, 1973; McLeod & Kessler, 1990; Myers et al., 1973) and gender (Dohrenwend, 1973; Flannery, 1985; Jorgensen & Johnson, 1990). The above identified gaps in

the literature were addressed in the present study examining the relationship of negative life events and perception of family functioning in low income pregnant women.

Methods

Research Design

Using a non-experimental descriptive study design a secondary analysis was performed on data collected by Schiffman and Omar (1994). Their study involved factors influencing adequacy of prenatal care and pregnancy outcome at a comprehensive prenatal center serving low income women in southeast Michigan. Women were followed from their initial prenatal visit until their postpartum visit. Information was gathered through prospective survey and chart review about various sociodemographic, psychosocial, and physiological characteristics both prenatally and during the postpartum time periods. Schiffman and Omar's research was an evaluation study comparing adequacy of prenatal care and pregnancy outcomes at two locations, the comprehensive center and other provider sources of prenatal care in the community. In the present study, data from two variables were analyzed to understand and describe their relationship. These variables were negative life events (NLEs), and the woman's perception of her family's functioning (FF).

Selection of Subjects

The sample for the current study consists of all the women from the original study who completed both the Norbeck Life Event Questionnaire (LEQ) and the Family APGAR

instruments (N=124). The largest sample size possible was maintained to enhance representativeness. A probability sample was not possible due to the original study design of a convenience sample, and a lack of a list of the total population. Criteria for the original study also required the subjects to give informed consent and to be able to read English sufficiently to fill out the questionnaires.

Operational Definitions

Negative Life Events

This variable was operationalized as events on Norbeck's (1984) Life Event Questionnaire (LEQ) which occurred in the subjects's life during the past 12 months that were identified as having a "bad" effect. For each event, if it was present during the past year, the respondent circled whether the effect was "good" or "bad". The "total number of negative life events score" is the sum of the raw number of negative life events (i.e., those events circled as "bad"). Respondents then rated how much that event affected their life cycle by circling the number corresponding to the statement. Responses ranged from no effect (0) to great effect (3). The "negative life event impact score" was measured by the mean sum of the affect/impact scores associated with each event. Since pregnancy is an item on the questionnaire, it was excluded from the above computations. Additionally, items 32 and 33 were eliminated from the calculations as these items apply to males only.

The "NLE impact score" was then also converted into a dichotomized high/low impact variable. NLE impact score values from 0 to 2 were assigned to the "low NLE impact" group, and values greater than 2 were assigned to the "high NLE impact" group. The selection for the dichotomy of the NLE impact scores was based on the mean NLE impact score of 1.93 (SD=.81) in the original data collected by Schiffman and Omar (1994).

Family Functioning

Family functioning was from the pregnant woman's perception and was measured by the woman's mean score on the five question "Family APGAR" questionnaire by Smilkstein (1978). There are five possible responses for each question with scores ranging from never (0) to always (4). The scores from each item were added together and averaged to obtain a single score ranging from 0 (low family functioning) to 4 (high family functioning).

Instrumentation

Life Event Questionnaire (LEQ)

The LEQ developed by Norbeck in 1984 is a revision of a previous life event scale (Sarason et al., 1978). It was specifically modified (nine new items) to apply to adult female respondents of childbearing age. The resulting 82 item self-report questionnaire takes 10 to 20 minutes to complete (see Appendix A). Items are organized into 11 categories: Health, Work, School, Residence, Love and Marriage, Family and Close Friends, Parenting, Personal and

Social, Financial, Crime and Legal, and Other. For each event, the respondent circled whether the effect was "good" or "bad" and then rated how much that event affected their life cycle by circling the number corresponding to the statement. Choices ranged from no effect (0) to great effect (3). For this study, only the items circled as "bad" were used. Thus, two scores were calculated. The "total number of negative life events score" was calculated by adding the raw number of events circled as "bad". The mean sum of the impact ratings for all events marked "bad" by the respondent constituted the "negative life event impact score".

The LEQ has been tested to establish reliability and validity. To determine the stability of the instrument, test-retest reliability was calculated on the negative, positive, and total event impact scores over a one-week interval. The Pearson's correlations ranged from .78 to .83 (Norbeck, 1984). Criterion related validity of the LEQ negative life event impact score was assessed by calculating Pearson's correlation with three well studied instruments which measure psychological symptoms: a) the Speilberger State-Trait Anxiety Inventory (STAI), b) the Profile of Mood States (POMS), and c) the Brief Symptom Inventory (BSI). The correlation coefficients between the LEQ negative life event impact score and the comparative instruments are as follows: a) the Trait Anxiety subscale of the STAI coefficient of correlation was .37 ($p<.01$), State Anxiety score $r=.23$ (only approached significance), b) of the POMS's

seven subscales, five reached statistical significant levels of correlation ($p<.05$) with coefficients ranging from .30 to .54, and c) the three summary indexes of the BSI had statistically significant ($p<.01$) correlations of .36, .39, and .30. The relationship between the overall LEQ (and the new items) and psychological symptoms was tested. The findings showed the negative life event impact score was significantly related to unfavorable psychological symptoms and to composite and subscale scores of measures of psychiatric symptoms (Norbeck, 1984). By achieving a statistical relationship when comparing the LEQ to these established instruments, criterion related validity is supported. This is because the LEQ is a useful predictor of the psychological outcomes in the other instruments used as criterion.

Family APGAR

The Family APGAR by Smilkstein (1978) is a five question self-report questionnaire based on the premise a family member's perception of family functioning can be assessed by their satisfaction with five areas (see Appendix B). In each area, the woman selects one of five possible responses ranging from never (0) to always (4). Mean scores from the five questions are calculated to result in a single number ranging from zero (low family functioning) to four (high family functioning).

The Family APGAR has been well tested among several populations including college students, family medical

center patients, psychiatric outpatients, children age 10 and older, and across cultural groups internationally. Reliability was assessed with a Cronbach's alpha coefficient of r=.80 when three response options were utilized. In research applications, a five response option format is preferred with a Cronbach's alpha coefficient of r=.86 (Smilkstein et al., 1982). Internal consistency was also demonstrated with inter-item correlations ranging from r=.24 to r=.67 with a split-half reliability index of r=.93 (Good et al., 1979). Stability of the instrument over a two week interval resulted in a test-retest reliability coefficient of .83 (Smilkstein et al., 1982). The Cronbach's alpha for the prenatal administration in the original project was r=.88 (Schiffman & Omar, 1994).

Construct validity of the Family APGAR was determined by administering the instrument to various samples in two categories, a nonclinical "normal" population, and clinical mental health outpatients. The total scores were significantly different at $p<.001$, meaning that mental health outpatients as a population will have different scores on the Family APGAR than the nonclinical "normal" population. Family APGAR scores in these populations were also compared with two other measures of family function: a) the Family Function Index (FFI) by Pless and Satterwhite (1973), and b) an evaluation of family functioning by a clinical therapist. The APGAR/FFI correlation was strong at

r=.80. A moderate correlation of r=.64 resulted from the Family APGAR and a psychotherapist's evaluation of the clinical group. The inter-spouse correlation of the nonclinical group was higher for the Family APGAR (.67) than for the FFI (.65) (Good et al., 1979; Smilkstein et al., 1982).

Data Collection Procedures

Since this study was a secondary analysis of data from the research of Schiffman and Omar (1994), the reader is referred to Appendix C for details regarding the original collection of the data. Once the questionnaires had been completed by the pregnant women and returned to the original investigators, the information was entered into a computer database. For the present study, data were provided on a disk for the variables.

Data Analysis Plan

The data were analyzed using the SPSS computer software program. The demographic sample data was described using the frequencies, percents, means, and standard deviations. Demographic data of interest included the age, race, marital status, educational level, and insurance status of the subjects. Additionally, the pregnancy risk, weeks of gestation, and gravid and parity status (including term and preterm deliveries) were described.

The sample data for NLEs was analyzed and described in several ways: a) the most frequently identified negative life events (excluding pregnancy) for the sample, b) the

mean impact scores for the most frequently identified NLEs, c) the NLEs whose mean impact scores were the highest, d) the frequency and percent of respondents who reported this pregnancy as a "bad" event, and the associated mean impact score, and e) the frequency and percent of women who reported this pregnancy as a "good" event, and the associated mean impact score.

The first research question of the relationship between the total number of negative life events and the perception of family functioning was answered by the Pearson's product moment correlation. The second research question dealing with the relationship between the total negative life events impact score and the perception of family functioning was also be answered by a Pearson's correlation coefficient. An independent t-test determined whether there was a significant difference in the third question between perceptions of family functioning in low income pregnant women with high NLE impact scores and those with low NLE impact scores.

The number of women in the original sample by Schiffman and Omar (1994) who did not complete both the LEQ and the Family APGAR instruments was compared in the demographic variables to the women who did answer both questionnaires. The independent t-test was used to determine if there were significant differences between the means, and, therefore, if the portion who completed the questionnaires were representative of those who did not. If a significant

difference between the groups occurred, then one must question whether the results can be generalized to a larger population that is dissimilar in demographic variables to the respondent sample population.

Human Subjects Protection

For the secondary analysis, the author did not receive any information that could lead to the identification of any subject. The individual's confidentiality was maintained. Only data relating to the current study was released to the author from the larger data set. The data were presented by code number only, with no names or identifiers. The researcher did not have access to the data until approval for the study was granted by the University Committee on Research Involving Human Subjects (UCRIHS) at Michigan State University. The original research project by Schiffman and Omar (1994) was approved by the human subjects review board at Michigan State University (see Appendix D). A letter of approval from UCRIHS for the present study is located in Appendix E.

Assumptions and Limitations

An assumption of the study was that the women could both read and understand the questions, and follow the instructions appropriately. It was assumed the women responded honestly, without outside influence or pressures from family members or others. Situational factors such as lighting, time of day, temperature, and noise as well as transitory personal factors such as fatigue, anxiety, mood,

and hunger were assumed to not cause a change in the responses given. The study assumed the data was entered accurately from the questionnaires into the computer for analysis.

With the Family APGAR instrument, the assumption was made that the women similarly defined the concept of family based on the instructions. The women were asked to answer the questions while considering their family to be the individual(s) with whom they usually live. If the woman lived alone, she was then instructed to consider her "family" as the persons with whom she currently has the strongest ties.

For this study it was assumed that the women remembered correctly the events that occurred in their lives over the past 12 months, and that their perception of the event remained stable over that time period. Self-report data raises issues of accurate recall and perception of NLEs (Flannery, 1985). An empirical study by Funch and Marshall (1984) found a fall-off rate of reporting life events to be approximately five percent per month. After 12 months, only 55% of events reported at the baseline were remembered, and then a leveling off occurred. Although differences in the rate of fall-off were seen among socioeconomic groups, at 12 months the percent of events recalled were similar. Most life event researchers, however, still consider 12 months as a reasonable time period to survey when assessing life events.

An additional methodological problem in self-reporting of life events is denial and veracity. Yamamoto and Kinney's study among pregnant women (1976) found a significant correlation between the scores on the Lie Scale (from the MMPI) and the life event score. However, the lie score accounted for less than 10% of the variance in the life-event scores. It was assumed that the subjects told the truth in this study. This problem of underreporting of events is put into perspective by some who have questioned the possibility that subjects tend to overreport the negative life events as opposed to positive ones (McFarlane, Norman, Streiner, Roy, & Scott, 1980; Sarason et al., 1978). Both of these teams of researchers checked their samples for this possible effect and found more positive events were reported than negative life events.

The convenience sample originally obtained poses a limitation on assuming this sample is truly representative of the population. Because a non-probability sampling technique was utilized, there is the limitation of no possible way to measure potential bias of the sample. "Available subjects might by atypical of the population with regard to the critical variables being measured" (Polit & Hungler, 1995, p. 232). It was assumed that those who refused to participate in the study were not any different from those who are in the sample. However, this can never be verified.

Limitations in this descriptive study include the inability to say that NLEs caused the perception of family functioning, only a relationship can be shown if it exists (Brown, 1973). There might be other intervening variables (such as described in the review of literature) that also influence the dependent variable (Rabkin & Struening, 1976). One must assume that some level of confoundedness involving the independent variable is inherent based on the appraisal process of NLEs, and that this does not make the research without value (Lazarus et al., 1985). To some degree NLEs may be both the cause and outcome of family functioning. This study chooses to accept a certain amount of confoundedness based on the chosen conceptualization of NLEs as a subjective process. The benefit of viewing the NLE from the woman's perspective and determining the associated impact the event produces, is seen to outweigh the potential methodological drawbacks.

A methodological difficulty in interpretation comes from the fact that events, attitudes, and perceptions are very complex in the real world and can be inter-related in complex ways. Also, a sense of self-selection occurs as the women are in the study based on pre-existing circumstances. They could possess traits or characteristics that are extraneous to the research problem, but that could still influence one or more of the variables (Polit & Hungler, 1995). Examples of this are the woman's parity status, developmental life stage, or problem solving ability.

Results and Findings

Sociodemographic Description of the Sample

From the original convenience sample of 172 women collected by Schiffman and Omar (1994), only 124 women completed both the Life Event Questionnaire (LEQ) and the Family APGAR during the prenatal time period. The sociodemographic descriptions of the sample can be found in Tables 1 and 2.

The sample, as displayed in Table 1, was as anticipated: primarily white, single women with low risk pregnancies who were receiving Medicaid. Over three-quarters of the sample consisted of Caucasian women. No Asian or Native American women were included. Less than 30% of the women were married or living with a boyfriend. Half of the women had a high school diploma or its equivalency, while 31.4% had not even attained that level. Most of the women (91.9%) were either currently receiving Medicaid or their Medicaid status was pending. Pregnancy risk status for the sample was low to moderate, with less than 3% falling into a high risk category.

Table 2 shows the mean age of the women in the present study was 22.8 years, but their age varied widely. The women ranged in age from 15 to 37 years. There were 10.5% of the women under age 18, and 12.1% were age 30 and above. Thus, about 77% of the women were ages 18-29. At the time of entry into the study (the women were approached at their first prenatal visit), the reported weeks of pregnancy

Table 1

Frequency and Percent of Sociodemographic Variables for the Sample (N=124)

Sociodemographic Variable	No.	%
Race		
Caucasian	99	79.8
African American	22	17.7
Hispanic	2	1.6
Other	1	0.8
Marital Status		
Single	74	59.7
Married/Cohabitating	35	28.2
Separated/Divorced	15	12.1
Educational Level		
Less than high school	2	1.6
Some high school	37	29.8
H.S. Diploma / G.E.D.	62	50.0
Some college	16	12.9
Associate degree	2	1.6
Not reported	5	4.0
Insurance Status		
Medicaid	83	66.9
Medicaid pending	31	25.0
Medicaid & other insurance	1	0.8
Blue Cross	1	0.8
Other insurance	2	1.6
Cash	6	4.8
Pregnancy Risk		
None known	64	51.6
At risk	43	34.7
High risk	3	2.4
Not reported	14	11.3

Table 2

Means and Standard Deviations of the Sociodemographic Variables for the Sample (N=124)

Sociodemographic Variable	M	SD
Age in years at time of entry to study	22.80	4.99
Week of gestation at time of entry to study	13.97[a]	6.93[a]
Total number pregnancies (gravid status) including present pregnancy	2.29	1.42
Parity status prior to this pregnancy (term plus preterm pregnancies delivered)	.99	1.24
Prior live preterm births (20-37 weeks) (preterm births)	.31	.75
Prior pregnancies delivered after 37 weeks (term pregnancies)	.69	1.02

[a]n=113 for weeks of gestation.

gestation ranged from 5 to 35 weeks (n=113). Approximately half the women (51.3%) began prenatal care during the first 12 weeks of pregnancy, and by the end of the second trimester, 90% had sought prenatal care. The current pregnancy was the first one for 42.7% of the women, and the highest number of pregnancies reported was six.

Almost half (48.4 %) of the women who completed the two questionnaires were nulliparas. Of the women who had delivered a pregnancy, 19.4% were primiparas, and 32.3% of the women had more than one previous pregnancy which

resulted in a delivery. Of those reporting a previous term pregnancy (>37 weeks), 18.5% had delivered once, 12.1% had delivered twice, and 8.1% had delivered three or four times. Sixty-one percent of the women reported never delivering a term pregnancy before. The majority of women (81.5%) did not report live preterm births (20-37 weeks of gestation). However, 10.5% of the women had one prior preterm birth, and another 8% had from two to four preterm births.

The 124 women who completed both the LEQ and Family APGAR instruments were compared on all sociodemographic variables to the 48 women in the original sample who did not complete the questionnaires. Statistical differences between the two groups ($p<.05$) appear only in the categories of marital status and pregnancy risk. More of the women who did not complete both questionnaires were single, and fewer of those women reported separation or divorce. The women not involved in the present study also had significantly higher levels of pregnancy risk ($M=1.92$), compared to the women responding to the LEQ and Family APGAR ($M=1.45$). It is possible that the study results could have been different if the 48 additional women would have completed the questionnaires and been included in the present study, as these women might have had additional stressors.

Description of Life Events

Out of the 124 women in the sample, only 101 women reported at least one negative life event that had an impact score ranging from no effect (0) to great effect (3). There

were no events that were only viewed as "bad" by women, although 12 events were identified to be only "good" events. Six events (including the pregnancy event) had responses that showed at least one subject viewed the event as having both a positive and negative affect on her life.

For calculations, the pregnancy event (item 6) and two events for men only (items 32 and 33) were removed. The mean number of NLEs reported by the 101 women was 5.54 (SD=4.50). The distribution is positively skewed (1.44) as 10% of the women had between 11 and 22 negative life events. The mean NLE impact score for all events was 2.04 (SD=0.73), corresponding to "moderate effect" on the scale. The distribution is negatively skewed (-.671) with peaks at 1.00, 1.50, 2.00, 2.50, and 3.00.

The most frequently identified negative life events from those who reported at least one NLE (n=101) with the corresponding NLE impact score ranging from no effect (0) to great effect (3) are displayed in Table 3. The NLE impact scores for these events reported by 10 or more women are organized in descending order in Table 4.

As seen in Table 3, the most frequently identified NLEs tended to fall in five of the eleven subscales: finances, residence, health, love and marriage, and family and close friends. Of the NLEs reported by 10 or more women, only four of the top 19 items (events number 10, 53, 67, and 68) were in other subscales. Financial changes and difficulty finding a job were both reported by over 20% of the women.

Table 3

Frequency and Percent of the Most Often Identified Negative Life Events with Corresponding Mean Impact Score

Item	Description	No.	%	M
69	Major change in finances (increased or decreased income)	28	27.7	2.36
30	Girlfriend/Boyfriend problems	28	27.7	1.96
3	Major change in sleeping habits	27	26.7	1.78
35	Change in closeness with partner	22	21.8	2.23
10	Difficulty in finding a job	22	21.8	1.86
48	Death of a family member or close friend	20	19.8	2.40
31	Breaking up with girlfriend or boyfriend or breaking an engagement	20	19.8	2.25
73	Credit rating difficulties	20	19.8	2.20
24	Difficulty finding housing	18	17.8	2.28
9	Major difficulties with birth control pills or devices	15	14.9	1.80
2	Major change in eating habits	13	12.9	2.00
67	Broke up with a friend	12	11.9	2.42
53	Conflicts with child's grandparents (or other important person) about parenting	12	11.9	2.17
45	Major change in the health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)	12	11.9	2.17
4	Major change in usual type and/or amount of recreation	12	11.9	1.83
37	Trouble with in-laws	12	11.9	1.58
27	Major changes in your living conditions (home improvements or decline in your home or neighborhood)	11	10.9	2.18
7	Miscarriage or abortion	10	9.9	2.10
68	Acquired or lost a pet	10	9.9	1.80

Table 4

Negative Life Events with the Highest Mean Impact Scores for Items Reported by 10 or More Women

Item	Description	M	SD	No.
67	Broke up with a friend	2.42	0.79	12
48	Death of a family member or close friend	2.40	0.75	20
69	Major change in finances (increased or decreased income)	2.36	0.83	28
24	Difficulty finding housing	2.28	0.89	18
31	Breaking up with girlfriend or boyfriend (or breaking an engagement)	2.25	1.02	20
35	Change in closeness with partner	2.23	0.75	22
73	Credit rating difficulties	2.20	1.01	20
27	Major changes in your living conditions (home improvements or decline in your home or neighborhood)	2.18	0.87	11
53	Conflicts with child's grandparents (or other important persons about parenting	2.17	0.94	12
45	Major change in the health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)	2.17	1.03	12
7	Miscarriage or abortion	2.10	1.10	10
2	Major change in eating habits	2.00	0.82	13
30	Girlfriend/Boyfriend problems	1.96	0.84	28
10	Difficulty in finding a job	1.86	0.94	22
4	Major change in usual type and/or amount of recreation	1.83	0.94	15
9	Major difficulties with birth control pills or devices	1.80	1.21	15
68	Acquired or lost a pet	1.80	0.79	10
3	Major change in sleeping habits	1.78	0.93	27
37	Trouble with in-laws	1.58	0.90	12

Relationship issues with a significant other (items 30 and 35), and a change in sleeping habits was also perceived as a NLE by over 20% of the pregnant women.

These same NLEs, seen in Table 4, are ordered in a descending manner based on NLE impact scores. The subscales associated with relationships (personal or social; parenting; family and close friends; and love and marriage) comprise 6 of the highest 10 NLE impact scores. Finances and residence concerns were also perceived to have a high NLE impact by the women. As far as impact is concerned, a major change in finances in the past 12 months has similar negative impact (2.36) to death of a family member or friend (2.40), or breaking up with a friend (2.42).

Four of the six items in the crime and legal matters subscale had high mean NLE impact scores ranging from 2.67 up to 3.00. However, there were only between two and six women who reported each one. Although small in numbers compared to other events, it is still interesting that six percent of the women reporting a NLE indicated they had been the victim of a violent act (rape, assault, etc) over the past 12 months.

Table 5 shows the result of the item about pregnancy. The life event of pregnancy was viewed as a "good event" by most of the women in the sample who completed both the LEQ and Family APGAR. Whatever the perception of the type of effect, the mean impact score was always high. For those women who saw the present pregnancy as a negative life

Table 5

Description of Responses to Pregnancy Item on the LEQ (N=124)

Type of effect	No.	%	M impact	SD
Good	111	89.5 %	2.24[a]	0.96[a]
Bad	4	3.2 %	3.00	0.00
Both Good & Bad	1	0.8 %	3.00	----
Not Reported	8	6.5 %	----	----
Total (n=112)			2.28	0.95

Note: Dashes indicate the mean impact and standard deviation cannot be calculated.
[a]n=107 as four respondents did not report any impact score.

event, the impact score was consistently the highest possible (3.0), representing a great effect on their life.

Description of Family APGAR Scores

The alpha reliability coefficient for the Family APGAR instrument in this study was .88 among the 124 women who answered the questionnaire, and .86 among the 101 women who reported at least one NLE. The Family APGAR scores were calculated on the same 101 cases which reported at least one NLE that had a corresponding impact score. This corresponds to the women whose scores would be utilized to answer the three research questions. Both mean scores for each of the five questions, and an average mean score for the entire questionnaire are displayed in Table 6. Overall, the women reported highest levels of satisfaction with the adaptation/assistance component (M=3.06) of their families, and lowest levels of satisfaction with the partnership/mutuality

Table 6

Means and Standard Deviations for Family APGAR Individual Items and Total Scale

Item	M	SD
Total scale	2.92	0.78
Adaptation	3.06	0.82
Partnership	2.79	0.97
Growth	2.86	0.98
Affection	2.84	1.00
Resolve	2.89	1.04

component (M=2.80). The mean Family APGAR score for the instrument was 2.92, which is just slightly below circling the "3" response for "almost always" satisfaction with family functioning. The skewness values for each item and the entire scale were all negative ranging from -0.37 to -0.89. This suggests that the data is asymmetrical showing a tail to the left on a bar chart. Thus more frequent responses were of the higher values. However, 11% of the women reported mean scores on the Family APGAR corresponding to "hardly ever" or "never" being satisfied with their family's level of functioning.

Research Questions Addressed

The relationships of the variables found in the three research questions will be described. Significance is defined at $p<.05$, two tailed, $n=101$. Because of the nonsignificant values for the Pearson's correlation coefficient in questions one and two, an attempt was made to

find if there existed a relationship between the variables that was nonlinear. The Spearman's rho values examined that possibility.

Question 1

The Pearson correlation between the total number of negative life events a woman experiences and her perception of family functioning was so low ($r(99)=-.0006$) that by chance alone the same correlation could be found in 99.5% of samples taken from this population. There was no statistical linear correlation between these two variables, or even rank order correlation (Spearman's rho $p=.60$), in low income pregnant women.

Question 2

The relationship between the total negative life event impact score and the low income woman's perception of family functioning in this sample was negative, but very minimal ($r(99)=-.07$). This suggests that in these 101 women, as their NLE impact score increased, their mean Family APGAR score tended to decrease to a small extent. However, this cannot be generalized to any other samples, due to the same nonsignificant value for Pearson's correlation coefficient and for Spearman's rho ($p=.51$). Thus there is no statistical linear or rank order correlation between the NLE impact score and the Family APGAR score of low income pregnant women.

Question 3

The data show there is no significant difference in perception of family functioning between the groups of low income pregnant women with low NLE impact scores and those with high NLE impact scores ($t(99)=-.19$, $p=.851$). The FF mean for those with a score of two or less on the Family APGAR was 2.90 ($SD=0.80$, $n=50$), compared to 2.93 ($SD=0.77$, $n=51$) for the mean of those with a score greater than two on the FF instrument. The probability that the small difference found in this sample's two groups was by chance alone is 85.1%, and thus the population does not significantly differ.

Additional Findings

For interest's sake, Pearson's correlation coefficients were computed to see how closely the number of events correlated with the sum of the impact scores and mean impact scores. This was done for both total events (positive and negative) and negative life events with the results shown in Table 7.

Table 7

Pearson Correlations of Number of Events with Impact Scores

	Total # events	Total # NLEs
Sum total impact score	.48[a]	.80[a]
Mean total impact score	-.32[a]	.11
Sum NLE impact score	.43[a]	.94[a]
Mean NLE impact score	-.15	.13

[a]$p<.001$.

The sum of impact scores for NLEs correlates much more strongly to the number of NLEs (r=.94) than the sum of total impact scores relate to the number of total events (r=.48). This suggests that when one desires to know the total effect that NLEs has on a person, the almost perfect correlation of the number of NLEs they have experienced might be an acceptable substitute. That substitution is inaccurate when it applies to total life events or mean impact scores, as the correlation is only moderate.

Discussion

The sample in the present study was quite homogeneous consisting of primarily low income Caucasian women with an educational level of high school or less. This group of women is typical of the women in the community in Southeastern Michigan where they live. In contrast, the samples from the only two other studies which examined the relationship of NLEs and FF in pregnancy were very different. Although the sample in the study by Mercer et al. (1988) was also primarily Caucasian (and included both the women and their partners), approximately 78% had at least some college education, a bachelor's degree, or a graduate or professional degree. Information on the women separately is not available. In contrast to the mean age for the present study of 22.8 years, the mean age of the women in Mercer's study was older (M=29 years). The sample of Smilkstein et al. (1984) had a mean age of 25.9 years for the women and contained a large number of students (21%).

Further demographic information is not available, but it appears that the present study is unique in that it addresses low income, high school educated women.

The present research takes into account the predominant singleness of the sample when family function is defined. Each woman was asked to define her family as those individuals with whom she usually lives. If she lived alone, the family was to be defined as the persons with whom she has the strongest emotional ties.

The results of the research questions are consistent in displaying no relationship between either the number or mean impact of negative life events and a low income pregnant woman's perception of her family functioning. Two conceptual aspects of NLEs are addressed in this study: both the objective amount and the subjective impact those events have on the woman's life. By the high correlation between the total number of NLEs and the sum of the NLE impact scores (.94), one can infer that the objective amount of NLEs has a relationship with the subjective total impact of NLEs. This forms a conceptual link between the two approaches one can take to events: purely objective, or with a subjective component.

Finding the high correlation between adding up the number of NLEs and adding up the NLE impact scores seems to conceptually agree with the results of Ross and Mirowsky (1979). These researchers found that simply adding up the number of NLEs was the same or more predictive of

psychiatric symptomatology than assigning various weights or impact scores to the NLEs and then summing. Vinokur and Selzer (1975) also found intercorrelations among the number of NLEs, life change units of NLEs, and self-rating of NLEs were all above .90. Unlike the present sample were the total number of events correlated only moderately with the self-rating impact of all events (.48), Vinokur and Selzer found the correlation to remain above .90 for total events as well.

The conceptual definition of family functioning (FF) as consisting of the five components of the Family APGAR is supported by the present data. The alpha reliability in the sample was .88. Not only was the reliability coefficient quite high, but if any one of the five components were to be removed, the total scale reliability would decrease.

The fact that the correlations between NLE and FF did not reach statistical significance, even when FF was dichotomized, has no direct comparison in the literature. The only study that reported a direct relationship between life events (conceptualized as life change units not NLEs) and FF in pregnancy found an opposite result from the present study (Smilkstein et al., 1984). The Smilkstein research found a weak correlation of .11 between scores on the SRE prior to pregnancy and family functioning. Thus more life change (not conceptualized as NLE) prior to pregnancy increased FF. During pregnancy, increased SRE scores (life change units) correlated with decreased FF

(-.17). However, the criterion level of significance was only 0.15. In addition, Smilkstein's variable for family functioning was dichotomized between those with maximal levels (corresponding to mean of 4.0 in the present study), and those with "modified levels" of family functioning (corresponding to any mean less than 4.0).

The only empirical evidence in the literature that establishes a direct relationship between NLEs and family functioning among families with pregnancy, was found among partners of women with high risk pregnancies (Mercer et al., 1988). The researchers found negative life events explained four percent of the variance in family functioning only for the partners of high risk pregnant women. For high risk pregnant women, low risk women, and the partners of low risk women, path analysis showed the relationship between the variables was only found to be an indirect one. Since the current study was primarily low risk pregnant women and did not include any partners of the women, it is not surprising that no direct relationship between NLEs and FF was found.

Lack of finding a significant direct relationship between the study variables of NLEs and family functioning, should be viewed in light of McCubbin and Patterson's Double ABCX Model (1983a, 1983b). In the model, the bridging concept of coping forms a link between the variables. This concept was not addressed in the present study, nor were the other concepts of family adaptive resources, and family definition and meaning given to the situation. Perhaps by

not examining these other factors, especially the link of coping, the true relationship of these variables could not be determined in this study. Statistically, finding a lack of correlation between the variables suggests one of two possibilities: a) a correlation exists in reality, but the study design was incorrect or the number or type of subjects was not sufficient to demonstrate a statistical relationship, or b) in real life, there exists no relationship between the variables. Because of the homogeneity of the sample, variance is decreased. This means the distribution of responses might be more similar in response due to the similarity of the respondents. These factors can decrease the value of the Pearson's correlation coefficient obtained.

Coping is a concept that has had much literature written about it in the past two decades, and is beyond the focus of this study. The team of Mercer and colleagues (1986, 1988, 1990) have been the main researchers that have included components of coping in their research of NLEs and family functioning in pregnancy. Their empirical studies supported the indirect effect of NLE on family functioning through the variables of perceived social support, depression, health perception, self-esteem, and sense of mastery in low risk pregnant women (Mercer et al., 1988). Others have found relationships between NLEs in pregnancy with concepts related to coping such as social support, anxiety, depression, and emotional disequilibrium (Norbeck &

Anderson, 1989; Norbeck & Tilden, 1983; Mercer & Ferketich, 1988). In fact, the author of the Life Event Questionnaire (LEQ) used in the present study, Norbeck, has contributed much nursing research in the area of social support (Norbeck, 1981; Norbeck, Lindsey, & Carrieri, 1981; Norbeck, Lindsey, & Carrieri, 1983).

More recent literature extends the concept of individual negative life events to family life events. Although the comparison to the present study is not exact, the concept of life events as an indicator of stress is similar, and worth noting. The Family Inventory of Life Events (FILE) instrument is similar to the LEQ in the concepts that it addresses. One difference is that the LEQ asks if the event happened in the individual's life over the past year, and the FILE asks whether the event occurred in the life of anyone in the family. The development of the Family Inventory of Life Events (FILE) led to testing the relationship between stressful family life events and family functioning (Lavee et al., 1987). The results supported that there is not a direct effect of family stressful life events on family wellbeing and functioning. Rather, it is only through its effect on interpersonal tension and role strains that the accumulation of life events affects family functioning (Lavee et al., 1987). Even then, the amount of contribution of stressful life events to intrafamily strain is small, explaining only seven percent of the variance.

The more recent trend in examining the effect of stressful life events and normative transitions on family functioning looks at how different family types can explain differences in response to a pile-up of demands. Thus the effect on family functioning differs depending on the type of family. This is seen in the family structure of single versus two parent families (McCubbin, 1989), and in levels of cohesion and adaptability the family exhibits (Lavee & Olson, 1991).

The literature is consistent with the lack of finding a direct relationship between the study variables in the population of pregnant women. The limitation of the present study was that additional intervening variables were not examined to determine if any indirect relationship could be found. However, the study does benefit the scientific knowledge base by supporting the hypothesis that no direct relationship exists between NLE scores and FF in low income women.

Further benefits of the present study are in identifying the perception of the effect of pregnancy in low income women, which corresponds with the data previously reported for a general income sample (Mercer, 1986). Approximately 90% of the women in this study viewed this pregnancy as a good event, corresponding to the 93% which Mercer found in her sample. Despite the population of the present study being primarily single and on Medicaid, one possible reason for such a high positive perception of the

pregnancy could be related to timing. Since the LEQ was administered on the second or third prenatal visit, and based upon gestational age upon entrance to the study, the woman was most likely in the second trimester when she reported the pregnancy as a positive event. The second trimester is often referred to the "honeymoon" period because the physical discomforts are at the minimal level during this part of pregnancy, plus the woman already had several weeks or longer to adjust to the concept of being pregnant.

Both the present study and the research by Mercer (1986) had 3% of the women view the pregnancy as a NLE. Mercer's study reported 4% failing to check pregnancy on the list, the present study had 6.5%. Although the sample size is too small to draw conclusions, it would be interesting to see in a larger sample if the impact scores for those who perceived the pregnancy as "bad" consistently remained higher than the impact scores of those who perceived the event positively.

The current research also identifies the most common negative life events in low income pregnant women, their corresponding impact scores, and the NLEs with the highest impact on the women. Details of the percent reporting specific life events in pregnancy in Mercer's (1986) short list are not available. Records (1993) found among her small sample (N=23) of pregnant adolescents completing a 51

item checklist, a higher percentage experienced events in the top ten (34.8-56.5%) than in the present study (14.9 -27.7%). Similar top ten items were change in financial status (of individual or family), and death of a family member or close friend, although different instruments were used. The literature has no previous listing of NLEs or their impact scores in adult pregnant women, which this study has produced. Areas for methodological improvement would be to increase the sample size so that the top mean impact scores for the individual NLEs would have a greater number of respondents.

A few problems arose in the raw data set provided to the researcher on disk. The Family APGAR instrument used by Schiffman and Omar (1994) in data collection, was discovered to have had the column headings for "always" and "almost always" transposed. Schiffman and Omar (1994) determined that the subjects generally responded to the written anchors versus consecutive numbering. This made it plausible to transpose "3" for "4" and coordinate the conceptual meanings with a numbering continuum. Therefore, before analyzing the data, the values of "3" and "4" were recoded in the appropriate manner. When the data on parity status of the women is interpreted, it must be done with caution. The raw data shows at least some of the women misinterpreted the questions. For example, the highest number of pregnancies reported was six, while the highest number of pregnancies delivered was eight. More than likely the parity status was

interpreted as number of children delivered instead of number of pregnancies delivered. Also, 76 women reported zero prior term deliveries, and only 60 were recorded as "zero" for the sum of both term and preterm deliveries. Three women did not provide corresponding information to answer both the type and the effect of the identified NLE, and were thus grouped with those who did not identify a NLE for the analysis.

A potential methodological problem in this study as well as in all life event research, is the concept of confoundedness. The question arises whether events on a list are related to one another (e.g. a change in eating habits is associated with a change in sleeping habits). This may artificially increase the frequency of life events a person reports, resulting in confoundedness. Tausig (1982) found that "personal" events in the SRE correlated with other events, and thus may be consequences, rather than events in their own right. NLEs have also been shown to relate to each other over several months (zero order correlation of .403 showing significance) (Ensel & Lin, 1991). In contrast, Eaton (1978) found that life events in general to be random and independent over a two year time period (beta coefficient of stability of .17). When controlled for age and educational level, the coefficient of stability dropped to .09.

Implications

Implications for Advanced Practice Nursing

Family Nurse Practitioners (FNPs) are skilled in the nursing process not only for physical problems, but also psychosocial situations; this is one aspect that makes the FNP role unique compared to physicians or physician assistants. Although a direct relationship between the number or impact of negative life events and family functioning was not found in this study, implications for advanced practice nursing (APN) can still be drawn based on the conceptual framework, and study results. The conceptual framework is supported by the evidence in the literature of the indirect effects that NLEs have on family functioning. The focus of APN interventions can be on the following: a) helping to manage the NLEs a woman and her family encounters, b) encouraging high levels of family functioning, and c) more broadly, taking into account the total situation (using the Double ABCX Model) while supporting the family unit during pregnancy. The FNP's role in the primary care setting is to prevent problems and encourage strengths within the family unit, thus promoting family as well as individual health.

Although pregnancy is often considered a positive life event, this study supports that a small percent of low income women view pregnancy as a NLE. Thus, when an FNP meets a pregnant client for the first time, the words "congratulations on your pregnancy" should not automatically

flow from the nurse's lips. Rather the need for assessment of the woman and her situation is first priority.

Nursing care of families follows the same paradigm as nursing care of individuals, the first step is assessment. As an assessor, the FNP must first identify the persons that the woman perceives to be included in her family. This might not always correspond with those persons which the nurse expects to be considered as part of the family unit. Differing cultures can have different beliefs as to who is included in the family, and blood relationship is not always a criteria. The FNP should systematically identify the stressors that the woman and her family faces. The LEQ and Family APGAR are a part of this assessment, but not the entirety. The lack of a direct relationship between these two scores as shown in the present study, supports that there is more to the total picture.

From the LEQ, the most frequently identified NLEs in this sample of low income pregnant women were a change in finances, trouble finding work, interpersonal problems with one's partner, and a major change in sleeping habits (most likely due to pregnancy). Breaking up with a friend, death of a family member or close friend, and a major change in finances were found to be the events with the most negative impact. The women were least satisfied with the sharing of nurturing and decision making responsibilities among family members, and most satisfied with the family's ability to use

resources for problem solving when family equilibrium is stressed.

To best serve the client and her perceived family, based on the conceptual framework, the assessment phase should include information on other areas as well, such as individual and family strengths and weaknesses. Family strengths mean not only resources the individuals in the family possess, but also resources outside the family system that could be accessed. The family's perception of those resources also must be addressed (perhaps they have had previous exposure to those resources that have left negative impressions in their mind). How does the woman's ethnic and socioeconomic cultural beliefs influence her interaction with the health care system? Resources also include kin networks. Depending on the race and cultural background of the woman, the size and accessibility of the expanded family as a social support resource will differ.

The beliefs and meanings that the woman and her family holds of their current situation should be ascertained. Borden (1992) describes the technique of "narrative perspectives":

> The clinician works to understand the ways in which previous life events and major turning points as well as the client's perception of self and his or her values and beliefs have influenced the individual's current appraisals of the event and his or her emotional states, coping strategies, and plans or goals (p. 137).

The FNP must monitor the flexibility and problem solving capabilities of the system as a whole, as it acts to meet the emotional, protective, financial and physiological demands of childbearing. What is the family culture and lifestyle like, and is it able to make the appropriate changes geared towards the addition of a new helpless family member (Hughes, 1987)? What problem solving or coping skills has the woman and her family used in the past, and what were the results? How does the family handle stressful events or transitions? Is there cohesion and flexibility or conflict and rigidity in the family with efforts to reorganize and adapt (Mays, 1988)?

Once the FNPs assessment is complete, the problems facing the individual woman and her family need to be clarified. The problems may be different for every low income pregnant woman the FNP encounters, reinforcing the need for individual assessment. In broader terms, the problems in the low income population of the present study have mostly to do with financial and interpersonal relationship issues. The financial aspect is anticipated given the income status of the women.

Once the problems are identified, the FNP can work toward the goal of interacting with the family system to reduce the impact of the NLEs identified and events surrounding pregnancy, and to help capitalize on the system's strengths. The APN as a change agent and planner also develops interventions specific to the situation to

help the family system maintain or increase its level of family functioning. Finding effective interventions requires much creativity. One intervention might be to inform the family of the changes and concerns they will encounter both externally and within the family unit due to the pregnancy, which will then help the family gain greater problem solving ability and self-confidence (Dietz-Omar, 1993).

The APN serves in the collaborator role, and sometimes as coordinator of the management plan for the woman and her family. Interventions for the population in this study might include referring the women to financial counselors to help construct a family budget both for the pregnancy and after the baby is born. If the women are not already involved with social service organizations designed to assist them with meeting their specific needs (housing, employment, etc.), those referrals should be made.

Using the advanced practice roles of counselor and educator, the FNP could begin a community based pregnancy support group to increase networking and social skills among the women and help them recognize that other women and families have situations and feelings similar to them. For the women to realize that 20% of their peers also reported similar NLEs (like boyfriend problems or a recent death), can be reassuring. Those women who have gone through similar circumstances can share how they dealt with their reaction to the event. Also other issues could be addressed

among the group such as the frequently mentioned NLEs of change in sleeping and eating habits, and difficulties with birth control devices. Counseling and role-playing regarding interpersonal relationships are interventions from which this population of women could benefit, especially since breaking up with a significant other, change in closeness with partner, and breaking up with a friend were reported frequently and with a high negative impact. Communication skills such as listening and respecting the needs of others, as well as how and when to stand up for oneself are areas that relate to the NLEs identified by this sample.

Single parenting classes as well as childbirth education classes would be important for women in this population. The FNP should be sensitive to the possible special considerations of this population, such as lack of transportation and lack of funds for childcare. To meet the needs of those who already have children, the FNP should network in the community with existing resources. One example of this would be to hold these classes and support groups for the moms at the same time and location as other events geared for their children (e.g. YMCA, school functions, etc). The FNP as an educator and advocate can bring the needs of the low income pregnant women in the area to the attention of community leaders. The APN as a professional can advocate for maintenance of funds, programs, and research to be committed towards this

population group. Because the FNP provides anticipatory guidance, support, and education, while serving as a role model and client advocate, true primary care focused on prevention and health promotion is achieved, both on the individual and community level.

While the women in this sample on average reported their satisfaction with family functioning near "almost always", the FNP can still look at ways to support and boost satisfaction with FF. Interventions include encouraging open communication with family members, and can be modeled by recommending a family member join the woman for her prenatal visits. The woman should be helped to understand that if she wishes to have the qualities of adaptation, partnership, growth, affection, and resolve in her family, then she must demonstrate those same characteristics in her interaction with her family members. Positive qualities in the family interaction should be identified and praised. For the 11% of the women in the sample who reported "hardly ever" or "never" being satisfied with their family's functioning, the APN should consider further assessment, family conferences, and possible referral.

Families in the lower socioeconomic classes might not have members who have the social skills to link to subsystems in society (Tomlinson et al., 1990). In addition, families with closed and rigid boundaries (characteristic of low levels of family functioning, reported by 11% of the women) tend to be isolated from the

broader community. For the pregnant woman with a perception of dissatisfaction with her family functioning, the FNP might be the only link to the health care community. And that link may be only because of the pregnancy situation. In those cases, the relationship established must be utilized to its maximum benefit. The APN needs to care not only for the pregnancy of the woman, but also to address the psychosocial aspects associated with family functioning. In all cases, no matter what the level of family functioning, the woman and her family must sense a genuine attitude of caring from the FNP for the interventions to be effective (Friedemann, Jozefowicz, Schrader, Collins, & Strandberg, 1989). The woman should never be looked down upon because of her socioeconomic status.

While the interventions are being implemented, whether they are directed at supporting and enhancing FF or minimizing the negative effects of NLEs, it is important that through the process the woman and her family gain understanding into their situation. Both the woman and her family should be able to express their feelings, and have the opportunity to explore alternative means of problem solving and new resources (Sherwen, 1987). This is consistent with the Double ABCX Model (McCubbin & Patterson, 1983a, 1983b) and involves identifying the various factors that influence coping and ultimately family functioning. The FNP can serve in the role of coach, helping the woman and her family to identify questions they have with the

process, and rehearsing potential interactions as they begin to problem solve. For example, if a woman realizes that the reason she yells at her sister is not due to being upset with her, but rather because she is having problems with her boyfriend and is angry at him, she has made a big step. The FNP can assist her in finding alternative ways to handle that emotion, and can role play how to reestablish communication with her sister.

The Advanced Practice Nurse should seek to empower the woman and her family, giving them a sense of control and choices whenever possible (Stainton, 1994). As a therapeutic relationship is established between nurse and client, the client is enabled to be a better self-care agent. By recognizing and praising small successes are along the way, self-efficacy can be reinforced.

Together the nurse and pregnant woman should evaluate the changes made and how they influence her reaction to the NLEs or her family's functioning. The nurse can help the woman think through the logical consequences of the decisions that she makes to ensure the results would not be detrimental to her family's level of functioning. The APN is an evaluator who uses standards to appraise the quality and effectiveness of the interventions. How helpful to the woman was it to have someone address her financial situation and problem solve the situation with her? Has she noticed an improvement in her ability to interact on an interpersonal level, and is she satisfied with the progress?

Has the previous level of satisfaction with family functioning been at least maintained or improved through the pregnancy?

The APN should support the family system in its new strategies of problem resolution, and emphasize inherent growth potential. If maladaptive results from the pregnancy or NLEs occurred to the family system, their negative impact should attempt to be reversed or lessened (Sherwen, 1987). The FNP needs to recognize low levels of personal or family functioning that should be referred to psychologists, psychiatrists, or family therapists for further evaluation and treatment.

The FNP cannot singlehandedly solve the problems that arise due to NLEs or low levels of family functioning. But, along with the client's participation, the FNP is part of a team of professionals that can help support a family through the developmental crisis of pregnancy among low income women.

Implications for Further Research

A starting point for additional research is related to the basic concepts of negative life events and family functioning. The literature needs to better clarify the conceptual meanings of what constitutes the terms NLEs and family functioning. And of course, the conceptualization of what the term "family" refers to must be clarified for each study.

Further research is necessary to help define the type of relationship that some have found to exist between negative life events and family functioning. Studies among the general population need to be continued such as the work of McCubbin and Olson. Once components of the relationship are identified, then studies can move to the next level of testing interventions to help improve family functioning. To further descriptive research, in the pregnant population, the work of Mercer et al. (1988) needs to be replicated. Since they found an indirect relationship between NLEs and FF, research should be expanded to see what other variables (besides self-esteem, mastery, depression, health perception, and perceived social support) are part of that indirect relationship. Possible additional variables include styles of family coping, family types, and role strains. Are the variables in the relationship found in pregnancy any different from the general population? The women in the present study were from differing family developmental stages, as approximately half of them were nulliparous. It would be interesting to see if one's family developmental stage (those with prior children and those without), had any effect on the variables of NLEs, family functioning, or the relationship of the two.

Once the relationship between NLEs and FF is further defined, then the socioeconomic aspect of the low income population is the next logical step. This is especially important for the health care field as McLeod and Kessler

(1990) found that those in the lower socioeconomic status experience more NLEs, and are more vulnerable to the impact of life change. Another possible direction for research is how the negative life events identified in a low income pregnant woman compare to the NLEs of women in general, or various other subgroups of the population. Other possible samples would be low income nonpregnant women, low income men, and middle and high income pregnant women. Are the NLEs truly more frequent and of a greater impact among the low income pregnant population than a general pregnant population or nonpregnant women? It would also be interesting to see if a different population would report on the relationship items the same frequency of NLEs and their impact.

To further descriptive research at this point, the two possible future studies that would be a continuation of the present study would be as follows: a) identify the most frequent NLEs and their impacts in a low income sample of nonpregnant women, and a middle income sample of pregnant women for comparison to the present study, and b) replicate the research of Mercer et al. (1988) in a low income pregnant sample, including the additional variables of style of coping, family type, and role strain.

Further research needs to be precise in how the conceptual terms of NLEs and FF are defined, so comparisons can be made across studies. Comparisons could be made on how responses on the Family Inventory of Life Events (FILE)

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Further research needs to be precise in how the conceptual terms of NLEs and FF are defined, so comparisons can be made across studies. Comparisons could be made on how responses on the Family Inventory of Life Events (FILE)

instrument differ from responses on a tool measuring individual life events.

Summary

In conclusion, the Advanced Practice Nurse, as a researcher who bases studies on a theoretical framework, can seek to generate knowledge that is helpful to promoting both individual and family health. The current study presented in this paper found no direct relationship between individual negative life events and perception of family functioning among low income pregnant women. However, the types of NLEs and the personal impact of those events are identified in this low income sample. The Double ABCX Model and other researchers' results suggest that the relationship between these two variables might be an indirect one. Further studies are needed to identify other factors that might be involved in the relationship of negative life events and family functioning.

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APPENDIX A
Life Event Questionnaire (LEQ)

LIFE EVENTS QUESTIONNAIRE

Number _____

Date _____

Instructions

Listed below are a number of events which may bring about changes in the lives of those who experience them.

Circle the events that have occurred in your life during the past year and circle whether these were Good or Bad.

Show how much the event affected your life by circling the appropriate number which corresponds with the statement (0 = no effect, 1 = some effect, 2 = moderate effect, 3 = great effect).

If you have not experienced a particular event in the past year, leave it blank.

Please go through the entire list before you begin to get an idea of the type of event you will be asked to rate.

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
A. HEALTH						
1. major personal illness or injury	Good	Bad	0	1	2	3
2. major change in eating habits	Good	Bad	0	1	2	3
3. major change in sleeping habits	Good	Bad	0	1	2	3
4. major change in usual type and/or amount of recreation	Good	Bad	0	1	2	3
5. major dental work	Good	Bad	0	1	2	3
6. (female): pregnancy	Good	Bad	0	1	2	3
7. (female): miscarriage or abortion	Good	Bad	0	1	2	3
8. (female): started menopause	Good	Bad	0	1	2	3
9. major difficulties with birth control pills or devices	Good	Bad	0	1	2	3
B. WORK						
10. difficulty finding a job	Good	Bad	0	1	2	3
11. beginning work outside the home	Good	Bad	0	1	2	3

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
12. changing to a new type of work	Good	Bad	0	1	2	3
13. changing your work hours or conditions	Good	Bad	0	1	2	3
14. change in your responsibilities at work	Good	Bad	0	1	2	3
15. troubles at work with your employer or co-workers	Good	Bad	0	1	2	3
16. major business readjustment	Good	Bad	0	1	2	3
17. being fired or laid off from work	Good	Bad	0	1	2	3
18. retirement from work	Good	Bad	0	1	2	3
19. taking courses by mail or studying at home to help you in your work	Good	Bad	0	1	2	3
C. SCHOOL						
20. beginning or ceasing school, college, or training program	Good	Bad	0	1	2	3
21. change of school, college, or training program	Good	Bad	0	1	2	3
22. change in career goal or academic major	Good	Bad	0	1	2	3
23. problems in school, college, or training program	Good	Bad	0	1	2	3
D. RESIDENCE						
24. difficulty finding housing	Good	Bad	0	1	2	3
25. changing residence within the same town or city	Good	Bad	0	1	2	3
26. moving to a different town, city, state, or country	Good	Bad	0	1	2	3
27. major change in your living conditions (home improvements or a decline in your home or neighborhood)	Good	Bad	0	1	2	3

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
E. LOVE AND MARRIAGE						
28. began a new, close, personal relationship	Good	Bad	0	1	2	3
29. became engaged	Good	Bad	0	1	2	3
30. girlfriend or boyfriend problems	Good	Bad	0	1	2	3
31. breaking up with a girlfriend or boyfriend or breaking an engagement	Good	Bad	0	1	2	3
32. (male): wife or girlfriend's pregnancy	Good	Bad	0	1	2	3
33. (male): wife or girlfriend having a miscarriage or abortion	Good	Bad	0	1	2	3
34. getting married (or beginning to live with someone)	Good	Bad	0	1	2	3
35. a change in closeness with your partner	Good	Bad	0	1	2	3
36. infidelity	Good	Bad	0	1	2	3
37. trouble with in-laws	Good	Bad	0	1	2	3
38. separation from spouse or partner due to conflict	Good	Bad	0	1	2	3
39. separation from spouse or partner due to work, travel, etc.	Good	Bad	0	1	2	3
40. reconciliation with spouse or partner	Good	Bad	0	1	2	3
41. divorce	Good	Bad	0	1	2	3
42. change in your spouse or partner's work outside the home (beginning work, ceasing work, changing jobs, retirement, etc.)	Good	Bad	0	1	2	3

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
F. FAMILY AND CLOSE FRIENDS						
43. gain of a new family member (through birth, adoption, relative moving in, etc.)	Good	Bad	0	1	2	3
44. child or family member leaving home (due to marriage, to attend college, or for some other reason)	Good	Bad	0	1	2	3
45. major change in the health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)	Good	Bad	0	1	2	3
46. death of spouse or partner	Good	Bad	0	1	2	3
47. death of a child	Good	Bad	0	1	2	3
48. death of family member or close friend	Good	Bad	0	1	2	3
49. birth of a grandchild	Good	Bad	0	1	2	3
50. change in marital status of your parents	Good	Bad	0	1	2	3
G. PARENTING						
51. change in child care arrangements	Good	Bad	0	1	2	3
52. conflicts with spouse or partner about parenting	Good	Bad	0	1	2	3
53. conflicts with child's grandparents (or other important person) about parenting	Good	Bad	0	1	2	3
54. taking on full responsibility for parenting as a single parent	Good	Bad	0	1	2	3
55. custody battles with former spouse or partner	Good	Bad	0	1	2	3

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
H. PERSONAL OR SOCIAL						
56. major personal achievement	Good	Bad	0	1	2	3
57. major decision regarding your immediate future	Good	Bad	0	1	2	3
58. change in your personal habits (your dress, life-style, hobbies, etc.	Good	Bad	0	1	2	3
59. change in your religious beliefs	Good	Bad	0	1	2	3
60. change in your political beliefs	Good	Bad	0	1	2	3
61. loss or damage of personal property	Good	Bad	0	1	2	3
62. took a vacation	Good	Bad	0	1	2	3
63. took a trip other than a vacation	Good	Bad	0	1	2	3
64. change in family get-togethers	Good	Bad	0	1	2	3
65. change in your social activities (clubs, movies, visiting)	Good	Bad	0	1	2	3
66. made new friends	Good	Bad	0	1	2	3
67. broke up with a friend	Good	Bad	0	1	2	3
68. acquired or lost a pet	Good	Bad	0	1	2	3
I. FINANCIAL						
69. major change in finances (increased or decreased income)	Good	Bad	0	1	2	3
70. took on a moderate purchase, such a T.V., care, freezer, etc.	Good	Bad	0	1	2	3
71. took on a major purchase or a mortgage loan, such as a home, business, property, etc.	Good	Bad	0	1	2	3
72. experienced a foreclosure on a mortgage or loan	Good	Bad	0	1	2	3

Event	Type of Effect		Effect of Event on Your Life			
			no effect	some effect	moderate effect	great effect
73. credit rating difficulties	Good	Bad	0	1	2	3
J. CRIME AND LEGAL MATTERS						
74. being robbed	Good	Bad	0	1	2	3
75. being a victim of a violent act (rape, assault, etc.)	Good	Bad	0	1	2	3
76. involved in an accident	Good	Bad	0	1	2	3
77. involved in a law suit	Good	Bad	0	1	2	3
78. involved in a minor violation of the law (traffic tickets, disturbing the peace, etc.)	Good	Bad	0	1	2	3
79. legal troubles resulting in your being arrested or held in jail	Good	Bad	0	1	2	3
K. OTHER						
Other recent experiences which have had an impact on your life. List and rate.						
80. _____	Good	Bad	0	1	2	3
81. _____	Good	Bad	0	1	2	3
82. _____	Good	Bad	0	1	2	3

APPENDIX B
Family APGAR

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Family APGAR (A)

The following questions have been designed to help us better understand you and your family. You should feel free to ask questions about any item in the questionnaire.

The space for comments should be used when you wish to give additional information or if you wish to discuss the way the question is applied to your family. Please try to answer all questions.

Family is defined as the individual(s) with whom you usually live. If you live alone, your "family" consists of persons with whom you now have the strongest emotional ties.

For each question, circle only one number:

	Almost Always	Always	Some of the Time	Hardly Ever	Never	
I am satisfied that I can turn to my family for help when something is troubling me	4	3	2	1	0	(12)
Comments:						
I am satisfied with the way my family talks over things with me and shares problems with me.	4	3	2	1	0	(13)
Comments:						
I am satisfied that my family accepts and supports my wishes to take on new activities or direction.	4	3	2	1	0	(14)
Comments:						
I am satisfied with the way my family expresses affection and responds to my emotions, such as anger, sorrow, and love.	4	3	2	1	0	(15)
Comments:						
I am satisfied with the way my family and I share time together.	4	3	2	1	0	(16)
Comments:						

APPENDIX C
Field Procedures

Field Procedures

In the original study by Schiffman and Omar (1994) a data collector approached subjects in the waiting room at the comprehensive center during their first prenatal visit. The project was explained and informed consent was obtained. Then sociodemographic and physiologic data from the subject's records were recorded on the data collection form, and an instrument was completed which was used in the initial study. The woman's record and the data collection form were marked for the next scheduled visit.

At one of the woman's next two scheduled visits the LEQ and Family APGAR questionnaires (among others) were administered in a room separate from the examination and waiting rooms. Subject's questions were answered only for clarification of instructions and meanings of words. For the original study the woman's record and data collection form were then marked for the post-partum visit. Instruments were completed again at the postpartum visit and placed in a special folder for the data collector. A chart review collected other variables from the subject's record.

APPENDIX D
UCRIHS Approval Letters

MICHIGAN STATE
UNIVERSITY

November 21, 1995

TO: Lynda S. Hoeksema
2638 Brier Creek St. SE
Grand Rapids, MI 49508

RE: IRB#: 95-577
TITLE: THE RELATIONSHIP BETWEEN NEGATIVE LIFE EVENTS AND FAMILY FUNCTIONING IN LOW-INCOME PREGNANT WOMEN
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 11/21/95

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Rachel F. Schiffman

OFFICE OF
RESEARCH AND GRADUATE STUDIES

University Committee on Research Involving Human Subjects (UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX 517/432-1171

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

March 19, 1992

Mildred A. Omar, Ph.D.
Rachel F. Schiffman, Ph.D.
A-230 Life Sciences Bldg.

RE: FACTORS INFLUENCING PREGNANCY OUTCOME, IRB #92-115

Dear Drs. Omar and Schiffman:

The above project is exempt from full UCRIHS review. One of the Committee's members has reviewed the proposed research protocol and finds that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to March 16, 1993.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

David E. Wright, Ph.D.
Chair, UCRIHS

DEW/pjm

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

March 2, 1993

TO: Rachel Schiffman, Ph.D.
Mildred Omar, Ph.D.
A230 Life Sciences

RE: **IRB #:** 92-115
TITLE: FACTORS INFLUENCING PREGNANCY OUTCOME
CATEGORY: 1-C
REVISION REQUESTED: February 23, 1993
APPROVAL DATE: March 1, 1993

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project including any revision listed above.

UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must seek updated certification. Request for renewed approval must be accompanied by all four of the following mandatory assurances.

1. The human subjects protocol is the same as in previous studies.
2. There have been no ill effects suffered by the subjects due to their participation in the study.
3. There have been no complaints by the subjects or their representatives related to their participation in the study.
4. There has not been a change in the research environment nor new information which would indicate greater risk to human subjects than that assumed when the protocol was initially reviewed and approved.

There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. Investigators must notify UCRIHS promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

If we can be of any future help, please do not hesitate to contact us at (517) 355-2180 or FAX (517) 336-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:pjm